CAPE COD COMMISSION

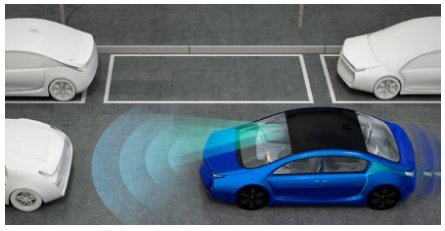
CAPE COD METROPOLITAN PLANNING ORGANIZATION

Cape Cod 2020 Regional Transportation Plan

2020-2040

Endorsed: July 15, 2019





COUNTY OF BARNSTABLE MASSACHUSETTS

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CAPE COD METROPOLITAN PLANNING ORGANIZATION

CAPE COD REGIONAL TRANSPORTATION PLAN (RTP)

FEDERAL FISCAL YEAR 2020

Anticipated Endorsement Date: July 15, 2019

Prepared by the

CAPE COD METROPOLITAN PLANNING ORGANIZATION (MPO) MEMBERS:

- Stephanie Pollack, Secretary and Chief Executive Officer, Massachusetts Department of Transportation (MassDOT)
- Jonathan Gulliver, Administrator, MassDOT Highway Division
- Tom Guerino, Chair, Cape Cod Regional Transit Authority
- Harold Mitchell, Cape Cod Commission
- James H. Crocker Jr., President, Barnstable Town Council
- Ronald Bergstrom, Barnstable County Commissioners
- Judith MacLeod-Froman, Bourne Selectman, for Bourne, Falmouth, Mashpee, and Sandwich
- Norman Holcomb, Yarmouth Selectman, for Dennis and Yarmouth
- Alan McClennen, Orleans Selectman, for Brewster, Chatham, Harwich, and Orleans
- Robert Weinstein, Truro Selectman, for Eastham, Provincetown, Truro, and Wellfleet
- Jason Steiding, Chairman, Mashpee Wampanoag Tribal Council

MPO EX-OFFICIO MEMBERS:

- Jeff Colby, Chairman, Cape Cod Joint Transportation Committee
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- Jeffrey McEwan, Federal Highway Administration
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AND THE CAPE COD JOINT TRANSPORTATION COMMITTEE:

- Thomas Andrade, Chairman, Dennis
- Thomas Temple, Vice-Chairman, Chatham

CAPE COD COMMISSION RTP STAFF CONTACT:

Steven Tupper, Transportation Program Manager, Cape Cod Commission

This report was funded in part through grants from the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), United States Department of Transportation (USDOT). The views and opinions of the Cape Cod Metropolitan Planning Organization (MPO) expressed herein do not necessarily state or reflect those of the USDOT.

CAPE COD METROPOLITAN PLANNING ORGANIZATION

Cape Cod Regional Transportation Plan (RTP)

ENDORSEMENT, RTP

The signatures to follow certify that the Cape Cod Metropolitan Planning Organization (MPO) hereby endorses the Cape Cod Regional Transportation Plan (RTP) for Federal Fiscal Year 2020 in fulfillment of the requirements of 23 CFR Part 450.324.

CERTIFICATION:

The Cape Cod Metropolitan Planning Organization (MPO) Planning Process

The signatures to follow certify that the Comprehensive, Continuing, Cooperative Transportation Planning Process for the current local, regional, state, and federal fiscal years in the Cape Cod Metropolitan Planning Organization planning area is addressing major issues facing the region and is being conducted in accordance with the requirements of:

1. Section 134 Title 23, U.S.C., and Title 49 U.S.C. 5303, and this subpart;
2. Sections 174 and 176(c) & (d) of the Clean Air Act, as amended {42 U.S.C. 7504, 7506 (c) & (d)} and 40 CFR part 93;
3. Title VI of the Civil Rights Act of 1964, as amended {42 U.S.C. 2000d-1} and 49 CFR part 21:
4. 49 U.S.C. 5332, prohibiting discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity;
5. Section 1101 (b) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (Pub. L. 109-59) and 49 CFR part 26 regarding the involvement of disadvantaged business enterprises (DBE) in USDOT funded projects;
6. Title 23 CFR part 230, regarding the implementation of an equal employment opportunity program on Federal and Federal-aid highway construction contracts;
7. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) and 49 CFR Parts 27, 37, and 38;
8. The Older Americans Act, as amended (42 U.S.C. 6101), prohibiting discrimination on the basis of age in programs or activities receiving Federal financial assistance;
9. Section 324 of title 23 U.S.C. regarding the prohibition of discrimination based on gender; and
10. Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and 49 CFR part 27 regarding discrimination against individuals with disabilities.
11. Anti-lobbying restrictions found in 49 USC Part 20. No appropriated funds may be expended by a recipient to influence or attempt to influence an officer or employee of any agency, a Member of Congress, in connection with the awarding of any Federal contract.

The currently endorsed Unified Planning Work Program, Regional Transportation Plan, and the Cape Cod Transportation Improvement Program (TIP) for Federal Fiscal Year 2020 were developed in accordance with FHWA/FTA regulations, EPA regulations, and fully incorporate the applicable requirements of the 1964 Civil Rights Act and the Americans with Disabilities Act of 1990.

CAPE COD METROPOLITAN PLANNING ORGANIZATION (MPO)

CAPE COD REGIONAL TRANSPORTATION PLAN (RTP)

The signatures to follow certify that the Cape Cod Metropolitan Planning Organization (MPO), at their meeting on July 15, 2019, hereby approves the following action in accordance with the Comprehensive, Cooperative and Continuing transportation planning process. In accordance with the requirements of 23 CFR Part 450 Section 308(c) of Federal Regulations, the MPO for Cape Cod has completed its review and hereby endorses the Regional Transportation Plan (RTP) for Federal Fiscal Year 2020.

Stephanie Pollack, Secretary/Chief Executive Officer – Massachusetts Department of Transportation (MassDOT)

Jonathan Gulliver, Administrator
Massachusetts Department of Transportation (MassDOT) Highway Division

Harold Mitchell
Cape Cod Commission

Tom Guerino, Chair
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Ronald Bergstrom
Barnstable County Commissioners

for James H. Crocker Jr., President
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Judith MacLeod-Froman
Bourne, Falmouth, Mashpee, Sandwich

Norman Holcomb
Dennis, Yarmouth

Alan McClennen
Brewster, Chatham, Harwich, Orleans

Jason Steiding
Mashpee Wampanoag Tribal Council

Robert Weinstein
Eastham, Provincetown, Truro, Wellfleet

CAPE COD COMMISSION

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Executive Summary

Cape Cod's transportation system has both shaped and been shaped by development patterns of the region. As our regional economy has evolved so too has our transportation infrastructure. From a reliance on ports and marine transport, to a steady growth by rail, and explosion of change fueled by the automobile – our region has undergone dramatic changes. All the while, our connection with our environment and our past has continued to define us. Demographic, climatic, and technological changes will present new transportation challenges over the next two decades and beyond. This plan presents a regional vision and sets of funding priorities to guide transportation investments that support the long-term vitality of the region.

The 2020 Regional Transportation Plan (RTP) is a **community-driven, performance-based** plan that considers the unique **challenges and opportunities** of the region and establishes spending **priorities** to allocate available surface transportation **funding** towards transportation **infrastructure**

COMMUNITY-DRIVEN

The RTP was developed through input from a wide range of federal, state, and local agencies and organizations, and the public. In addition to over two dozen meetings including six regional public meeting and two open houses, feedback was solicited through an online survey. The online survey provided valuable input into the process including the identification of 248 locations with transportation issues or challenges. The outreach will continue following release of the document for public comment including additional in-person public meetings, a virtual public meeting, signs on transit vehicles, and an outreach table at a major outdoor event.

PERFORMANCE-BASED

Consistent with new federal legislation, the RTP is built on a performance-based planning approach with a vision statement, goals, objectives, performance measures and targets, strategies, and policies.

The RTP vision statement established the overarching vision of the document and is as follows:

The Cape Cod Metropolitan Planning Organization, informed by public input, envisions a transportation system that supports the environmental and economic vitality of the region through infrastructure investment that focuses on livability, sustainability, equity, and preservation of the character that makes our special place special.

The goals of the RTP expand on the vision statement in seven areas of emphasis. The goals are:

- **Safety**: Provide safe travel options for all users
- **Environmental and Economic Vitality**: Maintain, protect, and enhance the natural environment while strengthening the economy
- **Livability and Sustainability**: Support livable communities and village centers that strengthen the long-term sustainability of the region
- **Multimodal Options/Healthy Transportation**: Provides a variety of healthy transportation options to all users
- **Congestion Reduction:** Reduce congestion and improve travel time reliability
- **System Preservation**: Preserve, maintain, and modernize the existing transportation system
- **Freight Mobility**: Improve efficiency and reliability of freight movement

The performance measures and targets established in the RTP are quantifiable targets that the region will work to achieve over the coming year through implementation of a series of strategies and policies.

CHALLENGES AND OPPORTUNITIES

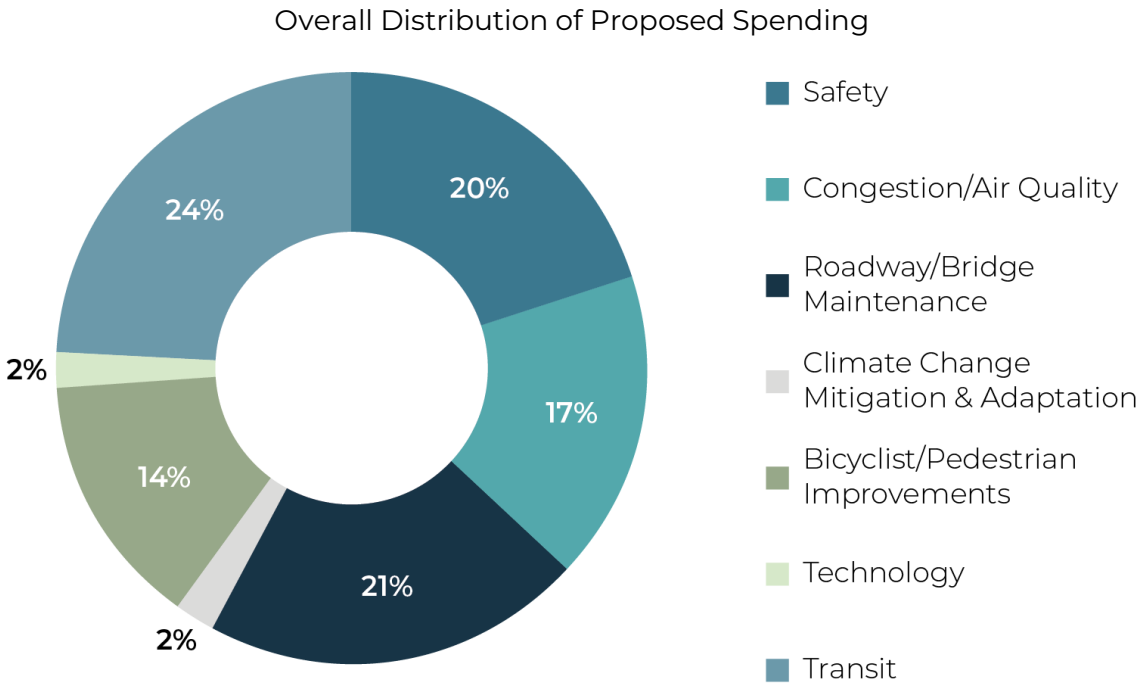
While the region faces many of the same transportation challenges as communities across the country and across the world, there are also many things that make Cape Cod unique. Developing transportation solutions for Cape Cod must take into account the things that make the region a special and desirable place to live, work, and play. Some of the challenges and opportunities for the region that are detailed in the RTP include:

- **Historical Context:** maintaining a sense of place and recognition of history while evolving to meet the need of the next generation
- **Aging Infrastructure**: repairing or placing a significant amount of transportation infrastructure that is at or near the end of its design life
- **Safety**: identifying the locations of greatest need and implementing proven safety countermeasures to improve safety for all users
- **Security**: being prepared for extraordinary events that would threaten the people and the infrastructure of the region
- **Freight**: recognizing the importance of freight to the region while exploring a variety of ways to safely and efficiently transport it
- **Bicycling, Pedestrians, and Transit**: identifying the unique needs of all users and improving options for a variety of modes of healthy transportation
- **Congestion Management**: identifying opportunities to reduce the intensity, duration, and extent of congestion for all modes of transportation
- **Stormwater Management**: identifying solutions to minimizing the contribution of nutrients and pollutants into the Cape's waterways from stormwater runoff

- **Climate Change**: preparing the region for the impacts of climate change through a focus on adaptation, sustainability, mitigation and energy sources
- **Access to Essential Services**: ensuring all users of the transportation have the same and convenient options to access essential services
- **Regional Cooperation**: ensuring that there is a cooperative and coordinated planning approach that involves all stakeholder agencies and the public
- **Economic Development**: supporting sustainable, year-round economic development opportunities through transportation infrastructure
- **Environmental Protection**: ensuring that transportation projects provide environment benefits including greenhouse gas (GHG) emissions reductions
- **Equity**: ensuring full and fair participation by communities in the transportation decision-making process, and equitable distribution of benefits and any potential burdens from transportation projects

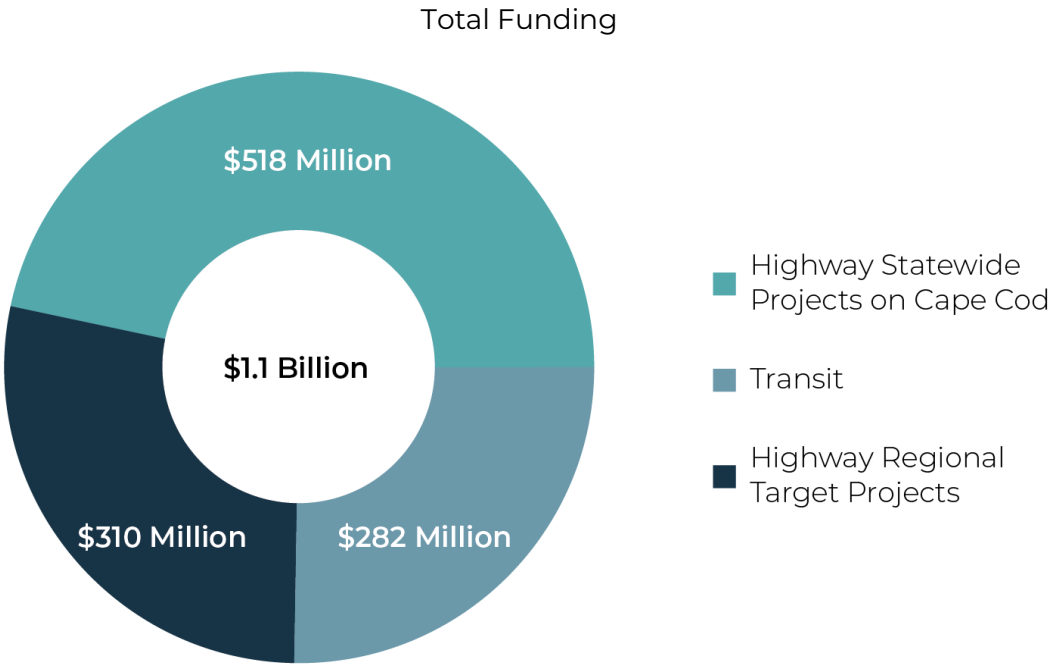
PRIORITIES

As a document that establishes the vision for the transportation system for the region, the RTP sets the framework for what will be built on Cape Cod. Based on a critical assessment of infrastructure needs, discussions at RTP development meetings, and feedback on the RTP survey, the following program of spending was developed. The overall distribution of proposed spending is shown below.



FUNDING

The anticipated funding in the region over the next 20 years totals approximately $1.1 billion. This total includes spending on transit as well as highway projects (including roads, bridges, sidewalks, multiuse paths, etc.) broken down as shown in the following figure.



INFRASTRUCTURE

Out of the nearly $310 million in funding for highway projects identified and selected by the region, the following projects were selected balancing a number of factors including potential benefit, estimated cost, consistency with the objectives and performance measures in the RTP, equity as it relates to minority, low income, Limited English Proficiency (LEP) and other protected populations, and GHG reduction potential:

- Mashpee Route 151 Improvements
- Yarmouth Road/Willow Street Improvements
- Scenic Highway Median Barrier
- Scenic Highway/Route 25 Connector Ramp
- Multimodal Improvements
- Cape Cod Rail Trail Extensions: Mid- and Upper-Cape
- Cape Cod Rail Trail Extensions: Outer Cape
- Route 28 Multimodal Improvements (various segments)
- Bike Path Connectors to Town Centers

- Route 6 Interchange and Route 6 Outer Cape Safety Improvements
- Various smaller-scale projects to be identified based on future evaluations

While many uncertainties exist about the future, the strength of the transportation infrastructure will undoubtedly be a key to Cape Cod's long-term vitality. The 2020 RTP sets forth this vision for the region and sets the framework for making smart transportation investments within the region through 2040.

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Chapter 1: Introduction and Plan Development

This 2020 Cape Cod Regional Transportation Plan (RTP) is a fiscally constrained set of transportation projects, programs, and transportation studies covering 2020 to 2040. The RTP establishes the long-range view of transportation based on existing system data and existing and projected needs. The RTP includes an assessment of the existing transportation system and its federal aid components—whether transit, highway, pedestrian, or other—and endeavors to improve the transportation system and its connections for better mobility for residents, commuters, and visitors. The RTP includes all modes of surface transportation throughout the 15 communities of Barnstable County.

Preparation of the document is undertaken by the Cape Cod Commission staff every four years on behalf of the Cape Cod Metropolitan Planning Organization (MPO).

This chapter includes background information on the transportation planning process, a synopsis of the public participation process, and regional survey results.

TRANSPORTATION PLANNING PROCESS

Cape Cod Metropolitan Planning Organization (MPO)

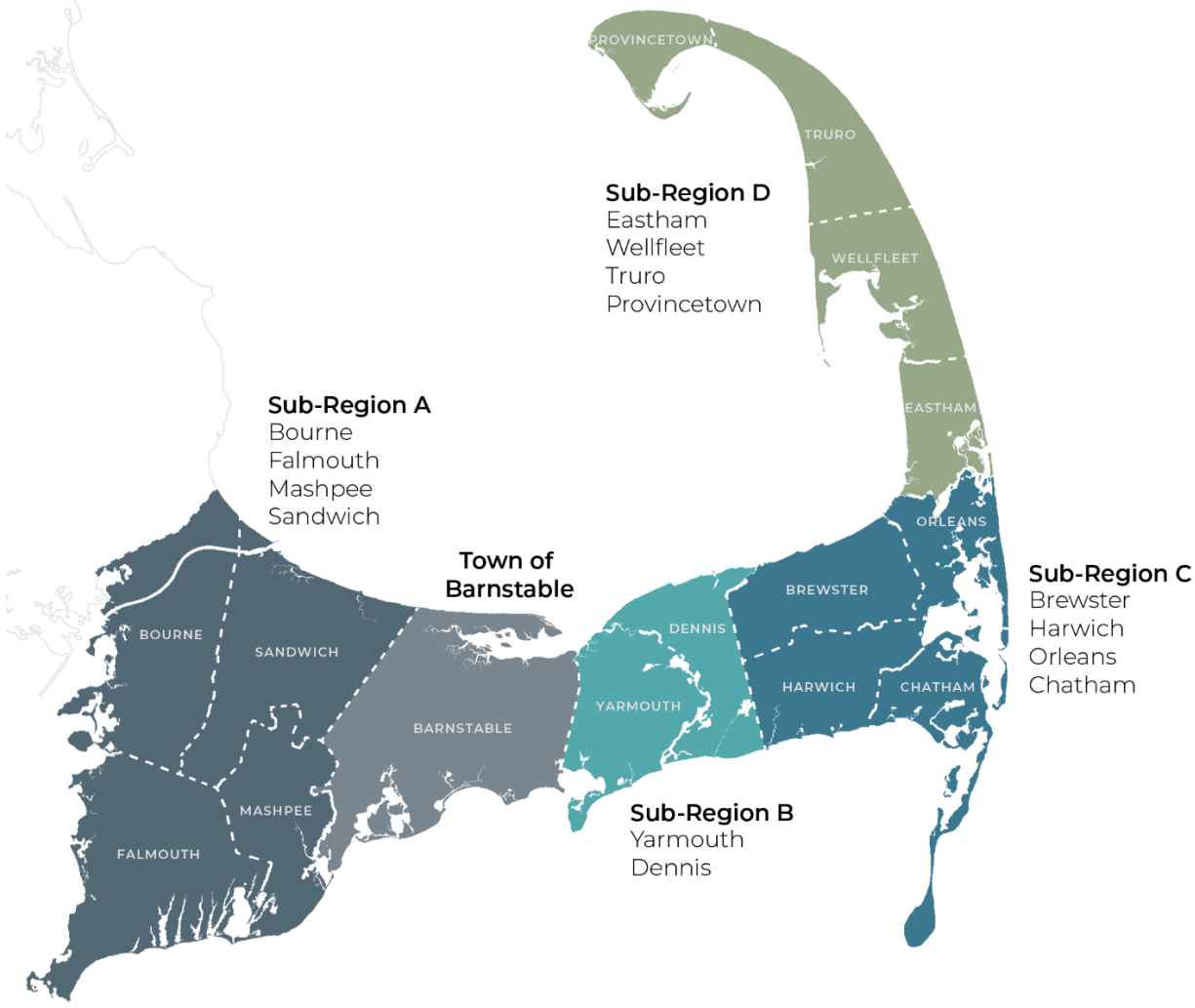
The Cape Cod Metropolitan Planning Organization (MPO) is the regional governing body established by federal law to oversee regional transportation planning and recommend the distribution of transportation funds locally. The MPO is responsible for reviewing, guiding, and endorsing the RTP.

The MPO is made up of eleven voting members that generally meet monthly. The membership is outlined in Table 1. Town representation on the body is depicted in Figure 1.

TABLE 1. Cape Cod MPO Membership

AGENCY	MPO SIGNATORY
Massachusetts Department of Transportation (MassDOT)	Secretary of Transportation
MassDOT Highway Division	Administrator
Cape Cod Regional Transit Authority (CCRTA)	Chairman
Cape Cod Commission (CCC)	Chairman
Barnstable County Commissioners	Commissioner
Mashpee Wampanoag Tribe	Tribal Chairman
Town of Barnstable	Town Council President
Sub-region A (Bourne, Falmouth, Mashpee, Sandwich)	Selectman
Sub-region B (Dennis, Yarmouth)	Selectman
Sub-region C (Brewster, Chatham, Harwich, Orleans)	Selectman
Sub-region D (Eastham, Provincetown, Truro, Wellfleet)	Selectman

FIGURE 1. MPO Regional Representatives



The MPO also includes non-voting Ex-Officio Members: Federal Highway Administration, Federal Transit Administration, Army Corps of Engineers, National Park Service/Cape Cod National Seashore, the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority, and the Chair of the Cape Cod Joint Transportation Committee.

The MPO is served by an advisory body: the Cape Cod Joint Transportation Committee (CCJTC). The CCJTC membership includes representatives from each of Barnstable County's fifteen towns and a bicycle advocate.

Development of the RTP also includes consultation with or consideration of a wide range of federal, state, and local agencies and organizations including:

- Barnstable County Government
- Massachusetts Coastal Railroad
- Cape Air
- Cape Cod Central Railroad
- Cape Cod Commission (CCC)
- Cape Cod Joint Transportation Committee (CCJTC)
- Cape Cod Metropolitan Planning Organization (MPO)
- Cape Cod National Seashore (CCNS)/ National Park Service (NPS)
- Cape Cod Regional Transit Authority (CCRTA)
- Cape Cod Towns
- Federal Highway Administration (FHWA)
- Federal Transit Administration (FTA)
- Hy-Line Cruises
- Joint Base Cape Cod (JBCC)
- Martha's Vineyard Commission
- Massachusetts Department of Recreation and Conservation
- Massachusetts Department of Transportation (MassDOT)
- MassBike
- MassRides
- Nantucket Air
- Nantucket Planning and Economic Development Commission (NPEDC)
- Old Colony Planning Council (OCPC)
- Freight Companies
- Peter Pan – Bonanza Bus Lines
- Plymouth and Brockton Street Railway Company
- Southeastern Regional Planning and Economic Development District (SRPEDD)
- U.S. Army Corps of Engineers
- Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA)

The staff of the CCC, CCRTA, and MassDOT, along with staff of the local towns, participates in the process through preparation of the documents for MPO action.

Federal Certification Documents

In addition to the RTP, the MPO is required to endorse other federal certification documents including the Transportation Improvement Program (TIP), Unified Planning Work Program (UPWP), and the Public Participation Plan (PPP).

The RTP establishes a regional vision for the transportation system, the UPWP studies investigate deficiencies in that system and identify potential solutions, and the TIP details specific transportation projects that are implemented to improve the transportation system. The PPP provides a framework to ensure public involvement and cooperative decision making throughout the transportation planning process. A summary of the primary function, time horizon, and updated timeline is presented in Table 2. The table also includes links to the Cape Cod MPO webpages that contain more detailed information on each of the documents.

TABLE 2. Federal Certification Documents

DOCUMENT	PRIMARY FUNCTION	TIME HORIZON	UPDATE TIMELINE
Regional Transportation Plan (RTP) www.capecodcommission.org/rtp	Establishes long-range vision and goals, identifies major projects, studies, and programs	20+ years	Every 4 years
Transportation Improvement Program (TIP) www.capecodcommission.org/tip	Identifies specific transportation investments (projects)	4 years	Annually
Unified Planning Work Program (UPWP) www.capecodcommission.org/upwp	Details planning studies and tasks	1 year	Annually
Public Participation Plan (PPP) www.capecodcommission.org/ppp	Establishes plan for public participation for transportation decision-making	Ongoing	Every 5 years or more frequently as needed

TITLE VI/NONDISCRIMINATION PROGRAM

The Cape Cod MPO follows federal and state non-discrimination laws and seeks to ensure that all interested parties in Barnstable County have access to the MPO's activities and services and that public involvement in the MPO's decision making comes from a diverse socioeconomic group that is representative of the county's population. The MPO has developed a nondiscrimination program, in accordance with federal and state requirements, to encourage broad public participation, representation, and equity in the region's transportation planning. The implementation of this program during the RTP development is summarized in the following sections and further detailed in Appendix L.

Title VI Background

Title VI of the Civil Rights Act of 1964 prohibits discrimination based on race, color, or national origin. Organizations that receive Federal funds are obligated to assure nondiscrimination in their programs and activities and are required to have a comprehensive Title VI enforcement program to prevent and eliminate discrimination in their federally funded programs. Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) set forth Title VI compliance requirements for "primary" funding recipients such as MassDOT and sub-recipients such as the MPOs to follow. Effective transportation decision making depends upon understanding and properly addressing the needs of different socioeconomic groups. The MPO's Title VI program includes identifying the demographic distribution of minority and limited English proficiency populations within the region and implementing a comprehensive strategy to ensure that the MPO conducts effective outreach to encourage their involvement in and access to the transportation planning and decision-making process.

The Massachusetts Department of Transportation (MassDOT) is responsible for ensuring that the state's MPOs comply with federal program requirements. Following MassDOT's 2013 Title VI program update, the Cape Cod MPO developed and adopted a Title VI Program in 2014. The Title VI plan provides information about beneficiaries' rights, how to file a complaint, regional demographic data, maps, a public participation plan, a language access plan, and analyses of transportation spending in the region, project locations and potential impacts from projects to ensure equity in the planning and implementation process for the region.

Although Title VI is the focal point of non-discrimination law in the United States, FHWA incorporates a broader spectrum of statutes, executive orders, and regulations into its requirements for states and MPOs. For example, Section 324 of the Federal-Aid Highway Act of 1973 prohibits discrimination based on sex; Section 504 of the Rehabilitation Act of 1973 prohibits discrimination on the basis of disability status, as does the Americans with Disabilities Act of 1990; and the Age Discrimination Act of 1975 prohibits age discrimination. In addition, the Civil Rights Restoration Act of 1987 (FHWA Notice 4720.6) clarified the original intent of Congress with respect to Title VI by restoring the broad, institution-wide scope and coverage of the nondiscrimination statutes to include all programs and activities of federal-aid recipients and enforcing the application of the laws that include nondiscrimination on the basis of race, color, national origin, age, gender, or disability.

In addition to mapping demographic data that identifies areas (census blocks) in the county with higher proportions of low income and minority populations, the staff conducts analyses on the geographic distribution of the region's transportation spending and project construction, to ensure equity in the distribution of transportation improvements. In examining the Title VI based project distribution analysis, the proximity, frequency, value and nature of projects are identified in relation to statistically significant population concentrations of the Title VI protected categories; i.e. race,

color or national origin (including limited English proficiency) for transit related projects with the addition of age, sex and disability for highway related projects. The analysis also includes a review of potential project impacts – positive and negative – to ensure that that potentially underserved areas neither adversely impacted by, nor denied the benefits of, transportation projects. A key piece of the program is engaging such communities in the MPO's activities and decision making through expanded and targeted public outreach. The Public Participation Plan, as discussed below, establishes the MPO's public involvement goals and strategies.

PUBLIC PARTICIPATION PROCESS

To ensure an inclusive and accessible public engagement processes for development of the Regional Transportation Plan (RTP), staff looked to the framework established in the Cape Cod MPO Public Participation Plan (PPP). Goals of the PPP are to:

1. Obtain Quality Input and Participation
2. Establish Consistent Commitment
3. Increase Diversity
4. Ensure Accessibility
5. Provide Relevance
6. Foster Participant Satisfaction
7. Clearly Define Potential for Influence
8. Establish and Maintain Partnerships
9. Provide Opportunities to Build Consensus

The MPO efforts to meet each goal are detailed in Appendix L.

The PPP is available in English and Portuguese at www.capecodcommission.org/ppp

Meetings and Open Houses

Numerous meetings have been held to discuss development of the RTP. Table 3 identifies meetings held solely for the plan, as well as meetings of various organizations at which the RTP was discussed. Meeting locations where selected to provide geographic and demographic diversity as well as ensure that persons with disabilities were able to actively participate. CCRTA DART paratransit services were available to bring interested parties to meetings. Notices were disseminated to English and Portuguese media outlets.

TABLE 3. Regional Transportation Plan Meetings

CAPE COD METROPOLITAN PLANNING ORGANIZATION MEETINGS		
Meetings beginning in August 2018 and continuing through July 2019 Generally held once per month on a Monday at 1:00 PM, Cape Cod Commission Office, Barnstable		
CAPE COD JOINT TRANSPORTATION COMMITTEE MEETINGS		
Meetings beginning in September 2018 and continuing through June 2019 Generally held once per month on a Friday at 8:30 AM, Cape Cod Commission Office, Barnstable		
LISTENING SESSIONS/OUTREACH TABLE EVENTS/PUBLIC MEETINGS		
Eastham Town Hall – Listening Session	Tuesday, February 5	5:00 PM
Mashpee Library – Listening Session	Wednesday, February 6	5:00 PM
Hyannis Transportation Center – Listening Session	Thursday, February 7	2:00 PM
Bourne Cape Cod Canal Bike Path – Outreach Table at Bike Week Event	Monday, May 13	3:00 PM
Hyannis Transportation Center – Outreach Table at Bike Week Event	Tuesday, May 14	8:00 AM
Yarmouth Cape Cod Rail Trail at Station Ave. – Outreach at Bike Week Event	Wednesday, May 15	3:00 PM
Orleans Cape Cod Rail Trail at Main Street – Outreach at Bike Week Event	Monday, May 16	3:00 PM
Falmouth Public Library – Outreach Table	Wednesday, May 22	6:30 PM
Provincetown Veteran Memorial Community Center – Public Meeting	Monday, June 3	5:00PM
Hyannis Transportation Center – Public Meeting	Wednesday, June 5	10:00 AM
Sandwich Town Hall – Public Meeting	Wednesday, June 5	5:00PM
RTP Office Hours	Week of June 24-28	Various
OTHER MEETINGS/ACTIVITIES		
Lower Cape Regional Bicycle Committees – Harwich Town Hall	Tuesday, January 15	5:00 PM
Cape Cod Commission/Cape Cod Metropolitan Planning Organization Joint Meeting – RTP Presentation and Discussion	Wednesday, January 21	3:00 PM
Eastham Route 6 Study Public Meeting	Wednesday, February 27	5:00 PM
Wellfleet Bike & Walkways Committee – RTP Presentation and Discussion	Wednesday, March 27	2:00 PM
Sierra Club Cape Cod Group – RTP Presentation and Discussion	Monday, April 8	5:00 PM
Mashpee Rotary Study Public Meeting	Thursday, April 11	1:00 PM
Mashpee Rotary Study Public Meeting	Thursday, April 11	5:00 PM
Cape and Islands Association of Realtors Leadership Institute – RTP Presentation and Discussion	Tuesday, April 30	10:00 AM
Bourne Town Administrator's Advisory Committee on Pedestrian Bicycle Pathway - Bourne Rail Trail Public Informational Meeting	Wednesday, May 1	6:00 PM

Collectively, the RTP meetings provided a wide array of opportunities for the public to learn about the document and share their comments. Comments received reflected both regional interests in the Cape Cod transportation system as well as more location specific concerns based on the location of the meeting.

Figure 2 shows a collection of photographs that were taken at various RTP outreach events.

FIGURE 2. Photographs of Outreach Activities



Other Outreach Strategies

In addition to the traditional outreach approaches, staff utilized a number of new strategies in an effort to increase public participation.

EXPANDED EMAIL OUTREACH DISTRIBUTION

In an effort to better connect with the various groups and agencies in the region that interact in different ways with the transportation system every day, an expanded email distribution list was created to share all notices and announcements on the development of the plan. This expanded outreach list including the following groups and agencies that were identified in the region:

- Community & human services programs and providers
- Community centers
- Councils on aging
- Day care and child development programs
- English language media outlets (print and audio)
- Financial institutions
- Fire districts
- Hospitals and health centers
- Interested citizens (those who requested to be included in the list)
- lesbian, gay, bisexual, and transgender (LGBT) organizations
- Libraries
- Local and area chambers of commerce
- Local and regional housing partnerships, authorities, and groups
- Local and regional transportation providers (all modes)
- Local community-based organizations
- Local financial development corporation and economic development corporations
- Local legislators
- Local police and fire departments
- MPO and CCJTC members
- Portuguese language media (print and radio)
- Public and private educational institutions and school departments
- Religious institutions
- Town clerks, managers, departments of public works directors, town planners, and other similar town personnel
- Town councils
- Transportation consulting firms
- Veterans services

PORTUGUESE-LANGUAGE COMMENT LINE

In an effort to ensure that anyone with questions or comments on the plan was heard, a Portuguese-language comment line was set up to field calls from Portuguese-speaking individuals. The recorded message, in Portuguese, thanked the caller for their interest in the plan and asked

that they leave their name and number so that staff, with the assistance of a translator, could respond to them.

PLAN WEBSITE AND SURVEY

The website dedicated to the development of the 2020 RTP was created as a place where members of the public could find general information about the plan development, learn about upcoming meeting, access materials from past meetings, complete the online survey, download the draft RTP, and provide comments. A link to the website was included on all project materials and linked from the Cape Cod MPO website. Each page of the website included a statement in Portuguese with contact information should they need the information in another language. A Portuguese-language version of the website was also provided through real-time Google translation.

BUS SIGNS

In addition to hosting an open house at the Hyannis Transportation Center, a regional intermodal hub, further efforts were made to ensure that transit riders had an opportunity to participate in the development of the document. Signs, as shown in Figure 3, were placed on all Cape Cod Regional Transit Authority buses and paratransit vehicles. The message on the sign was presented in both English and Portuguese.



FIGURE 3. Bus Signs

OUTREACH CARDS AND OTHER MATERIALS

Business card-sized outreach cards were developed to hand out at all public events attended by staff during the development in the plan. A few versions were created through the process, including a version to guide people to the online survey, but included a link to the website where information was kept up to date. Similar information was contained on water bottles and a banner used in outreach activities.

Regional Policy Plan Survey

The Cape Cod Commission (CCC) prepares a Regional Policy Plan (RPP) to guide development throughout Barnstable County. The Plan seeks to balance economic development with protection of the Cape's natural resources and community character. In order to produce an updated RPP that

meets the needs and goals of all Cape residents, the CCC engaged the University of Massachusetts Dartmouth Donahue Institute in 2014 to conduct a survey of Cape Cod residents to solicit their views about important local issues. A key finding from the report pertained to transportation. Under the category of "Current Problems for Towns and for the Cape:"

"Traffic congestion, coastal erosion, the availability of jobs and economic opportunities, and the pollution of ponds and coastal waters were consistently identified as current problems facing Cape Cod and its towns."

From a list of twenty potential problems, traffic congestion was identified by respondents as one of the most serious problem for their town (45% rated as "Serious"; 85% rated as "Serious or Moderate"). For the entire Cape, traffic congestion was also identified as the most serious problem (63% rated as "Serious"; 93% rated as "Serious or Moderate").

Respondents also identified "Future Problems for Towns and for the Cape." The top issue respondents believe will be a problem in the next five years is traffic congestion. 85% of respondents rated traffic congestion in their town as a serious problem in the next 5 years; for the entire Cape, this figure is 93%.

Regarding infrastructure development on Cape Cod, respondents were asked the extent to which they support or oppose a number of specific projects. The results of this question, along with the sample size (n), are presented in Table 4.

TABLE 4. RPP Transportation Infrastructure Question Survey Results

	N	STRONGLY SUPPORT	SUPPORT	UNSURE	OPPOSE	STRONGLY OPPOSE
A third automobile bridge across the Cape Cod Canal	369	25.5%	26.3%	18.2%	13.8%	16.3%
Expansion of state numbered roads (not including Rt. 6)	354	9.9%	20.6%	34.2%	22.9%	12.4%
Expansion of Rt. 6 after exit 9	359	19.2%	35.9%	19.8%	13.4%	11.7%
Expansion of Rt. 6 before exit 9	362	11.9%	25.1%	24.6%	26.0%	12.4%
A public parking garage	362	7.7%	23.5%	34.5%	23.2%	11.0%
Bike paths	368	43.2%	42.7%	7.6%	4.3%	2.2%

Regional Transportation Plan Survey

To facilitate public input in the development of the RTP, an online survey was developed and advertised through a number of outreach techniques as discussed earlier in this chapter. The RTP survey was advertised at RTP and other local and regional meetings and open houses distributed through the extended email distribution list, social media platforms, and picked up by a number of local media outlets.

The survey was open from February 5, 2019 through March 6, 2019 and a total of 273 responses were received.[1] A summary of results in presented in the section of the plan with additional data presented in Appendix O.

RTP VISION STATEMENT & GOALS

The online survey began with a draft vision statement and draft goals. In question 1 respondents were asked to provide any suggested additions or revisions. Responses were used in refining the vision statement included in this plan.

LIVE~WORK~PLAY

This section included a series of questions to better understand how respondents typically use the transportation system.

Question 2: "Where do you live?" There were 270 responses. All 15 Cape towns were represented with the highest frequency in Barnstable (64 responses) and Bourne (57 responses).

Question 3. "Employment Status" Respondents were presented with a list of checkboxes including: Employed, Self-Employed, out of work (looking for work), Out of work (not looking), Homemaker, Student, Military, Retired, Unable to work, and "Other." "Employed" had the largest number of responses (179) followed by "Retired" (56) and "Self-Employed" (35).

Question 4. "Where do you typically work/go to school?" Respondents were presented with a drop-down list of Cape Cod town names and "Other." There were 257 responses to this question with the largest frequency of respondents selecting Barnstable (65) and "Other" (44). Of the "Other" responses, there were 12 that specified a destination in the Boston area.

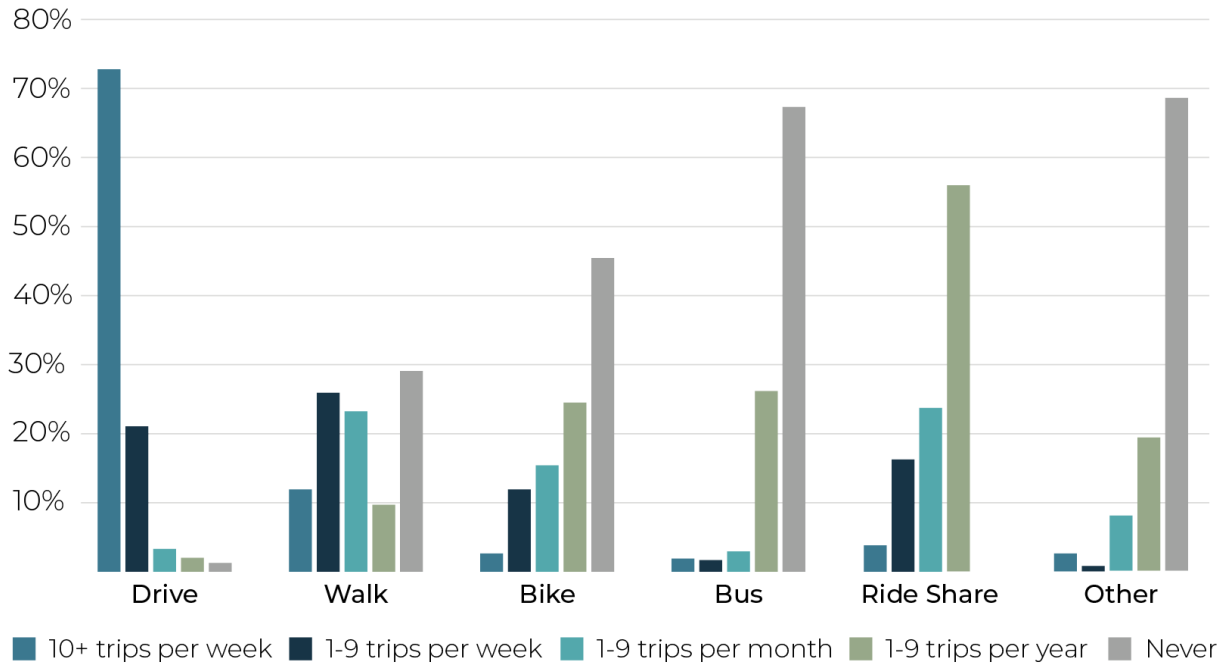
Question 5. "Besides home or work/school trips, what town do you spend most of your time? (visit, shopping, entertainment …)" Respondents were presented with a drop-down list of Cape Cod town names and "Other." There were 264 responses to this question. The most frequently selected towns include Barnstable (90), Falmouth (32) and Orleans (28).

[1] Given the relatively small sample size and the potential for self-section bias, the survey results should not be assumed to be necessarily representative of the overall population of Cape Cod

Question 6. “How frequently do you travel by each of the following modes of transportation?” Possible choices included: Drive, Walk, Bike, Bus, Ride Share, Other. Choices of frequency included: 10+ trips per week, 1-9 trips per week, 1-9 trips per month, 1-9 trips per year, never.

As shown in Figure 4, the most frequently used mode of travel is to drive. Walking was generally the second most popular travel mode, followed by bicycling. The use of buses or ride share services were relatively rare.

FIGURE 4. Responses: "How frequently do you travel by each of the following modes of transportation"

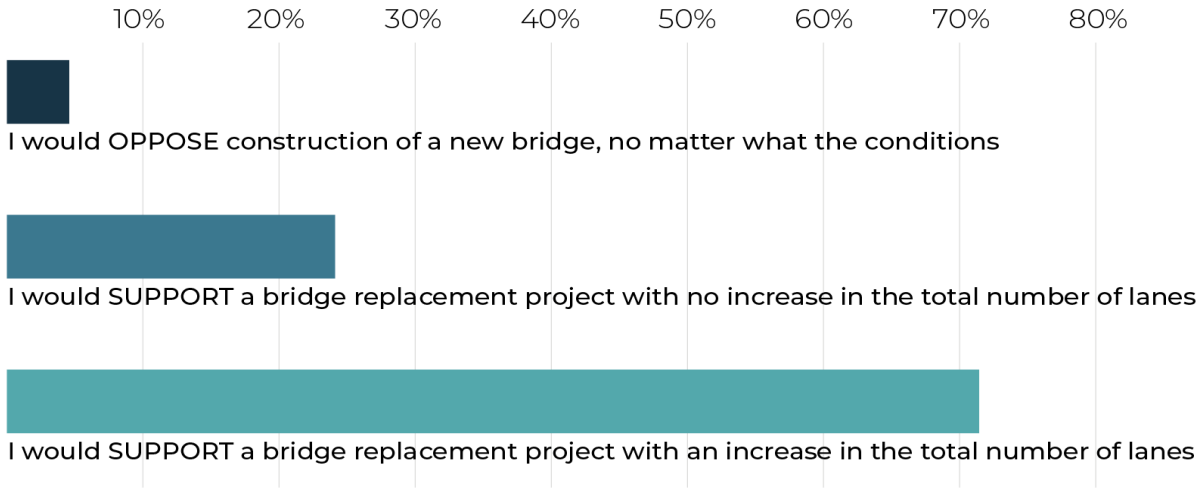


PROJECT SUPPORT: CAPE COD CANAL BRIDGES

Studies by the Massachusetts Department of Transportation (MassDOT) and the Army Corps of Engineers are currently looking at transportation alternatives in the Cape Cod Canal area. Respondents were asked a few questions about the alternatives being considered such as construction of a new vehicular bridge over the Cape Cod Canal.

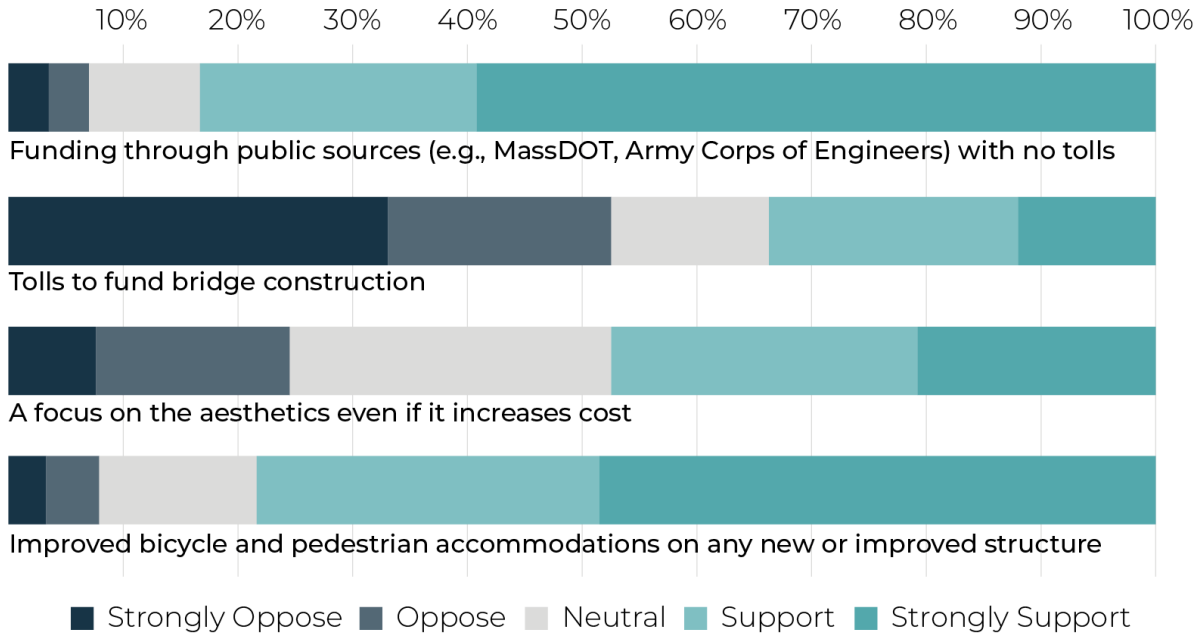
Question 7. "Which statement most accurately describes your position?" There were 257 responses to this question with responses summarized in Figure 5.

FIGURE 5. Support for Changes to Cape Cod Canal Bridges



Question 8. "Regarding Cape Cod Canal bridge construction, please indicate your level of support for." Results are summarized in Figure 6.

FIGURE 6. Support for Funding Options at Cape Cod Canal Bridges



PROJECT SUPPORT: OTHER PROJECTS

Respondents were then asked to indicate their support for the several projects. For each project, respondents were offered the following choices: Strongly oppose, Oppose, Neutral, Support, Strongly Support.

FIGURE 7. Level of Support for Potential Projects



BUDGET CHALLENGE

Recognizing that a limited amount of funding is available to address the transportation problems in the area, respondents were asked to indicate their level of support for the following types of transportation investment. For each investment type respondents could assign from 1 to 5 stars.

TABLE 5. Level of Support by Type of Investment

INVESTMENT TYPE	LEVEL OF SUPPORT (STARS)
Roadway projects to correct safety issues	4.15
Roadway projects to reduce congestion/improve air quality	3.91
Roadway pavement maintenance	3.75
Bicycle/pedestrian improvements	3.65
Transit service	3.67
Intelligent transportation systems (e.g., travel time message boards, real-time traffic monitoring)	2.89

OTHER

Lastly, a final text box was provided for respondents to provide any additional comments or suggestions. A summary of these comments is available in the appendix. Following this page, the respondents are taken to the Mapping Exercise.

MAPPING EXERCISE

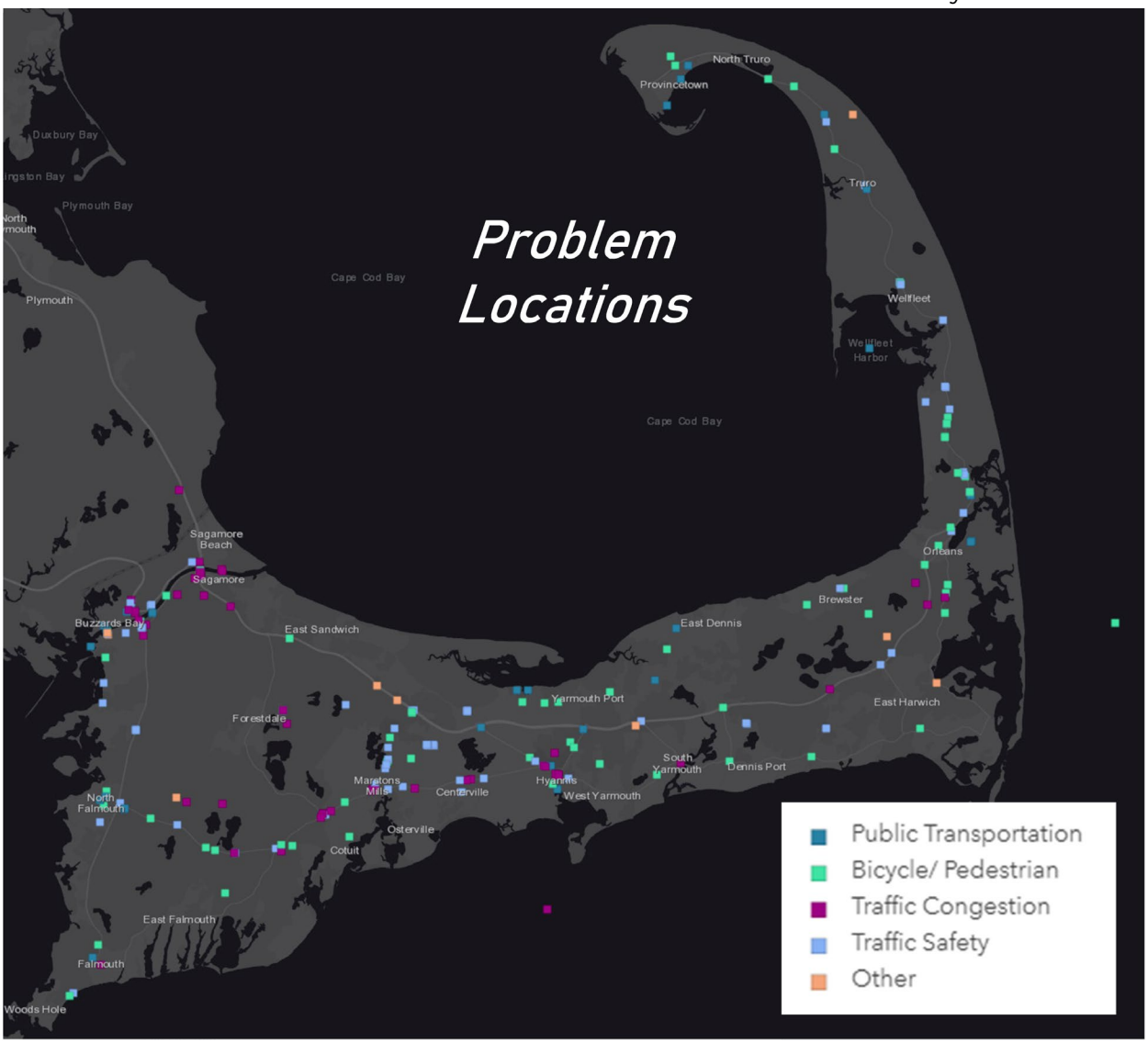
Cape Cod Commission GIS staff prepared an online mapping tool to help respondents identify specific locations under the following classifications:

- Traffic safety problems
- Traffic congestion
- Bicycle/Pedestrian trouble spots
- Other issues that impact daily transportation needs

A summary of the written comments is available in the appendix.

The responses gathered in this exercise are being formatted into an online map that will be shared with local Departments of Public Works Departments, MassDOT, the CCRTA, and other agencies.

FIGURE 8. Identified Problem Locations - RTP Online Survey



Chapter 2: Goals, Objectives, and Performance Measures and Targets

The Regional Transportation Plan (RTP) was developed through a performance-driven, outcome-based approach. This chapter details the Vision, Goals, Objectives, and Performance Measures and Targets of the RTP. This chapter also includes Policies and Strategies for reaching the Performance Targets. Finally, this chapter provides a framework for tracking progress towards performance targets and, to the greatest extent possible with the available data, provides an assessment of the current state of the transportation system with respect to the performance targets.

PERFORMANCE-BASED PLANNING AND PROGRAMMING

Performance-based planning and programming (PBPP) refers to the application of performance management principles within the planning and programming processes of transportation agencies to achieve desired performance outcomes for the multimodal transportation system.[2]

The Cape Cod MPO's PBPP approach consideration and implementation of projects, strategies, and services that will address the following factors:

- **Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;**
- **Increase the safety of the transportation system for motorized and non-motorized users;**
- **Increase the security of the transportation system for motorized and non-motorized users;**
- **Increase accessibility and mobility of people and freight;**
- **Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;**
- **Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;**

[2] Performance Based Planning Guidebook
http://www.fhwa.dot.gov/planning/performance_based_planning/pbpp_guidebook/

- **Promote efficient system management and operation;**
- **Emphasize the preservation of the existing transportation system;**
- **Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and**
- **Enhance travel and tourism.**

While PBPP has been used by a variety of transportation agencies for the past two decades, recent transportation legislation has made a "performance-based approach" a requirement for the metropolitan transportation planning process. Federal surface transportation legislation, *Moving Ahead for Progress in the 21st Century* (MAP-21), requires that "*the metropolitan transportation planning process shall provide for the establishment and use of a performance-based approach to transportation decision-making to support the national goals....*"[3]

The seven national performance goals for the Federal Highway programs, as established by MAP-21 and continued under the current federal transportation legislation, the Fixing America's Surface Transportation (FAST), are as follows:

- **Safety** - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Infrastructure Condition** - To maintain the highway infrastructure asset system in a state of good repair
- **Congestion Reduction** - To achieve a significant reduction in congestion on the National Highway System
- **System Reliability** - To improve the efficiency of the surface transportation system
- **Freight Movement and Economic Vitality** - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- **Environmental Sustainability** - To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- **Reduced Project Delivery Delays** - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices[4]

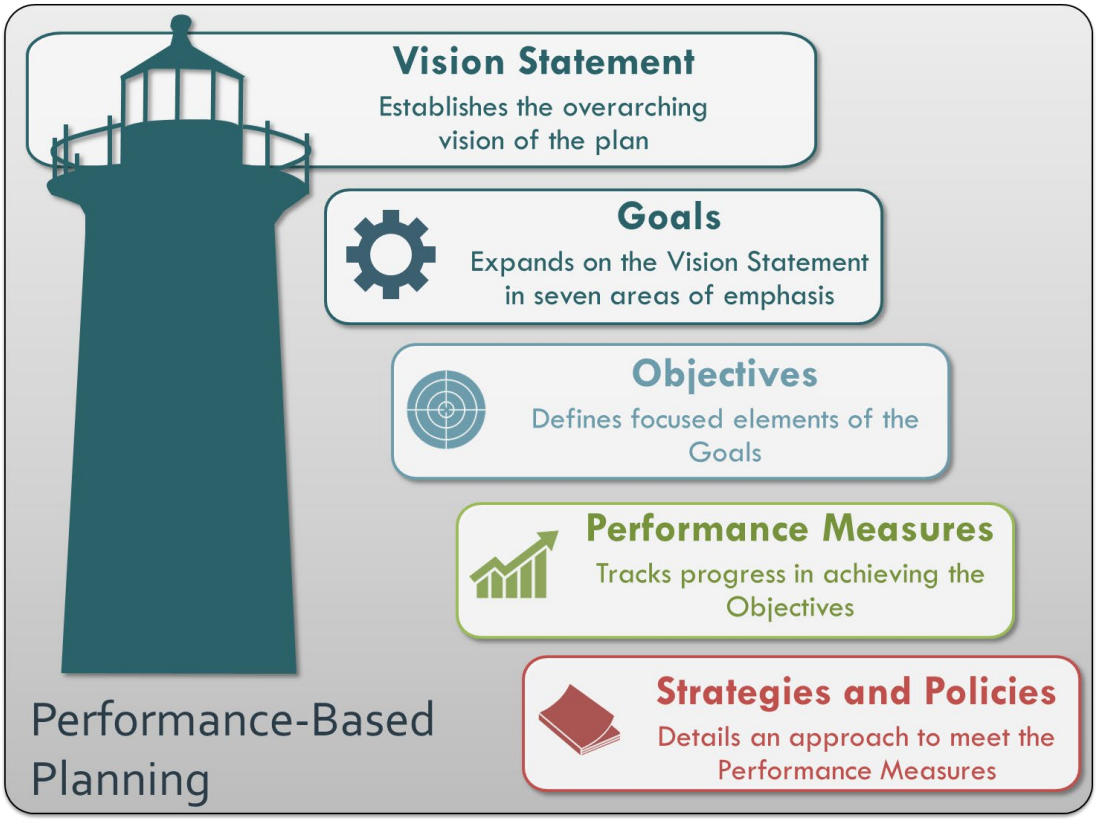
[3] 23 USC Section 134(h)(2); 49 USC Section 5303(h)(2)

[4] 23 USC Section 150(b)

The goals, objectives, and performance measures and targets set forth is this RTP reflect these national goals as well as priorities for the state and our planning region. State, regional, and local plans, including Freight, Bicycle Transportation, and Pedestrian Transportation plans, identify a number of these priorities and were considered in the development of goals, objectives, and performance measures and targets in this RTP.

The relationship of goals, objectives, and performance measures as well as polices and strategies are depicted in Figure 9.

FIGURE 9. Performance-based Planning Structure



VISION STATEMENT

The RTP vision statement establishes the overarching vision of the document. The vision statement for the 2020 RTP is as follows:

The Cape Cod Metropolitan Planning Organization, informed by public input, envisions a transportation system that supports the environmental and economic vitality of the region through infrastructure investment that focuses on livability, sustainability, equity, and preservation of the character that makes our special place special.

In support of this vision, the MPO identified the following goals for the 2020 RTP:

- Safety
- Environmental and Economic Vitality
- Livability and Sustainability
- Multimodal Options/Healthy Transportation
- Congestion Reduction
- System Preservation
- Freight Mobility

GOALS AND OBJECTIVES

The goals and objectives discussed in the following sections reflect the collective vision of the MPO in consideration of the thoughtful input provided from a wide range of individuals throughout the development of the RTP.

One of the ways that the RTP most directly affects change on the transportation system is through TIP projects that are programmed consistent with the framework of the RTP. The TIP details specific transportation projects that are anticipated to be advertised for construction within the next four federal fiscal years. For each year in the TIP, there is a limited amount of regional discretionary funding from which the MPO selects what are generally referred to as "TIP target projects." Within any given year there may be additional projects from other funding sources such as statewide roadway maintenance and statewide bridge projects. These projects are generally identified through systematic statewide analysis. Both "TIP target projects" and projects from other funding sources effect change in the transportation system but, given the different level of MPO input involved in identifying each type of project, they are dealt with in slightly different manners relative to performance measures. All "TIP target projects" are evaluated using TIP Transportation Evaluation Criteria which will be updated to reflect the goals, objectives, performance targets, and recommendation of this plan.

As our region, the state, and federal agencies gain more experience with performance measures there will likely be modification to these measures and targets. Additionally, as the region improves its ability to capture and analyze wider datasets more robust performance measures and targets may be possible. These performance measures and targets however represent an important first step in in establishing a true performance-based planning approach.

Safety

While the number of traffic-related fatalities generally trends down nationally, it is important to recognize that any fatality is a tragic event and the public expects that all efforts will be taken to ultimately eliminate traffic-related fatalities. To that end, the Federal Highway Administration,

Federal Motor Carrier Safety Administration, and National Highway Traffic Safety Administration have been actively involved in the *Towards Zero Deaths* initiative.[5]

The MPO is also supportive of the *Towards Zero Deaths* initiative and, as a step toward that ultimate vision, the first goal of the sets quantifiable measures and targets related to safety.

GOAL 1: PROVIDE SAFE TRAVEL OPTIONS FOR ALL USERS

Objectives:

- Reduce the number and severity of crashes associated with all modes of transportation
- Reduce fatality and serious injury rates associated with all modes of transportation

The performance measures reflect both a commitment to use available resources to improve safety as well as specific targets to track progress. The tracking of fatal crashes and serious injury crashes and rates is consistent with MAP-21 guidance and the goals of the Massachusetts Strategic Highway Safety Plan.[6] The decision to specifically analyze crashes involving bicyclists and pedestrians in addition to motor vehicle crashes reflects that region's recognition of improving safety for these vulnerable road users.

Strategies aimed at achieving the objectives under this goal include:

- **Continuously monitor** the condition of the transportation system to ensure that it is safe to travel on all modes throughout Cape Cod.
- **Fully program** minimum HSIP targets each TIP year and seek to program Statewide HSIP funds when available/feasible for priority safety related projects.
- Reduce crashes, serious injury crashes, fatal crashes, and crashes involving older drivers, crashes involving younger drivers, and crashes involving bicycles and pedestrians by **10% in 10 years**.
- Reduce the fatality and serious injury rates by **10% in 10 years**.
- Focus attention on the **strategic emphasis areas** identified in Massachusetts Strategic Highway Safety Plan that include: Impaired Driving, Young Drivers, Intersections, Older Drivers, Lane Departures, Pedestrians, Occupant Protection, Motorcycles, and Speeding/Aggressive Driving.6
- **Identify high priority safety locations** throughout Cape Cod and then determine measures to increase safety at those locations.

[5] http://safety.fhwa.dot.gov/tzd/

[6] https://www.mass.gov/files/documents/2019/01/18/dot_SHSP_2018.pdf

- **Separate high- and low-speed travel modes**, so that those traveling at slower speeds, such as bicycles and pedestrians, do not conflict with those traveling at higher speeds, such as rail and automobile traffic.
- Existing multilane roads (cross-sections of four or more lanes) are recommended to be modified via removal of unneeded lanes or installation of **landscaped median dividers** to provide a reasonable level of safety and access management.
- **Encourage safe use** of the transportation network through public awareness campaigns, promoting such things as seatbelts for motorists and helmet use for bicyclists.
- **Incorporate intelligent transportation systems**, such as variable message signs and other media alerts, into the emergency response system.
- Foster **communication and cooperation** between federal, state, and local agencies for the planning, practice, and implementation of emergency scenario plans.
- Designate and indicate, through road signs, **emergency evacuation routes and shelters**.
- Support enforcement of state and local **traffic laws**.
- Increase **surveillance and security efforts at transportation facilities** throughout Cape Cod, such as the Hyannis Transportation Center, Falmouth Bus Depot, Woods Hole port facilities, park-and-ride lots, and Cape Cod Canal Bridges.

Additionally, in support of this goal, the Cape Cod MPO supports the following policies:

- For proposed roadways with cross-sections of four or more lanes, **landscaped median dividers shall be included** to provide a reasonable level of safety and access management.
- To reduce injury crashes, when developing intersection improvements involving signalization of a previously unsignalized location, construction of a **modern roundabout** shall be considered as one of the alternatives.

Environmental and Economic Vitality

The importance of Cape Cod's environment to its economy cannot be overstated. Any threat to Cape Cod's environment is a threat to the vitality of the Cape economy as well the quality of life of those who live in, work in, or visit the region.

GOAL 2: MAINTAIN, PROTECT, AND ENHANCE THE NATURAL ENVIRONMENT WHILE STRENGTHENING THE ECONOMY

Objectives:

- Minimize negative impacts of the transportation system on the natural environment
- Reduce Greenhouse Gas (GHGs) generated by all transportation modes

- Improve stormwater management and treatment in transportation improvement projects
- Improve connections between housing, job, cultural centers, and essential services within and beyond the region

Strategies aimed at achieving the objectives under this goal include:

- Develop strategies to **reduce vehicle miles traveled (VMTs)**
- Encourage efforts that allow people to **work from home** and the development of **shared office space** in regional centers to reduce commuting traffic
- Encourage the use of **healthy transportation** modes that reduce air pollution, fuel consumption, and other environmental impacts such as greenhouse gas emissions.
- Pursue strategies that will get automobiles and trucks moving at **speeds that will minimize air pollution**.
- Replace public buses and vehicles with **fuel-efficient, hybrid, or bio-diesel** vehicles that will reduce fossil fuel consumption.
- Design roadways to **drain and cleanse oil and gasoline runoff** away from aquifers and other sensitive environmental areas.
- Encourage design decisions and construction practices that **minimize resource consumption** such use of reclaimed materials in paving projects, use of energy efficient lighting fixtures, and choice of drought-tolerant, low-maintenance landscaping elements
- **Protect drinking water** from materials used in the design, construction, operation, and maintenance of transportation facilities, such as road salt.
- Develop a transportation system that supports the **economic vitality of Cape Cod** and its metropolitan areas
- Prioritize projects that are consistent with the **economic development goals** of the Regional Policy Plan (RPP)[7] and the **regional priority projects** detailed in the Comprehensive Economic Development Strategy (CEDS)[8]
- Work with the Executive Office of Housing and Economic Development to identify **Priority Development Areas and Priority Protection Areas** on Cape Cod
- Implement projects in the Transportation Improvement Program (TIP) consistent with the goal. Specifically:
- 50% of TIP target projects should reduce GHGs and provide overall benefits to the natural system
- 50% of TIP projects outside of sensitive areas and 100% of TIP projects within sensitive areas should provide improved stormwater management and treatment

[7] Available at: www.capecodcommission.org/rpp

[8] Available at: www.capecodcommission.org/ceds

- TIP projects should improve signal operations at 5 locations along key corridors every 5 years
- TIP projects should close 5 gaps in the bicycle or pedestrian network every 5 years

Additionally, in support of this goal, the Cape Cod MPO supports the following policies:

- To reduce emissions from idling vehicles, when developing intersection improvements involving signalization of a previously unsignalized location, construction of a **modern roundabout** shall be considered as one of the alternatives.
- As roadway improvement projects are developed, **stormwater management** techniques shall be included to manage and treat surface runoff. Stormwater Best Management Practices (BMP), including Low Impact Development (LID) where feasible, shall be followed. Stormwater treatment benefits of all TIP projects shall be quantified by the design engineer and included in the design plans.

Livability and Sustainability

Livability and sustainability are about supporting strong communities that people will want to live in now and in the future.

Livability is about fostering communities where coordinated transportation, housing, and commercial development give people access to affordable and environmentally sustainable transportation. Incorporating livability approaches into transportation, land use, and housing policies can help improve public health and safety, lower infrastructure costs, reduce combined household transportation and housing costs, reduce vehicle miles traveled, and improve air and water quality, among many other benefits.[9]

Sustainability is about the future of the region. It is about incorporating environmental, economic, and societal considerations into policies, operations, investments, and research.[10]

GOAL 3: SUPPORT LIVABLE COMMUNITIES AND COMMUNITY ACTIVITY CENTERS THAT STRENGTHEN THE LONG-TERM SUSTAINABILITY OF THE REGION

Objectives:

- Support development in compact community activity centers

[9] http://www.fhwa.dot.gov/livability/fact_sheets/benefits.pdf

[10] http://www.dot.gov/sites/dot.gov/files/docs/2014-DOT-Strategic-Sustainability-Performance-Plan.pdf

- Improve the transportation system's resiliency to the effects of sea level rise
- Develop a transportation system that is consistent with the local character of Cape Cod

Strategies aimed at achieving the objectives under this goal include:

- Support **community activity centers** with a broad range of transportation options, such as roadways, transit, bicycle and pedestrian facilities.
- Projects that **improve access to or within community activity centers** should be identified and prioritized.
- Focus on closing gaps in the bicycle and pedestrian network identified in previous analysis of **connections to community activity centers**.
- Projects that improve the transportation **system's resiliency** to the effects of sea level rise should be identified and prioritized.
- All transportation projects and programs must be **responsive to the natural and built environments** within which they are undertaken.
- Use **landscaping and noise barriers** to protect communities and minimize adverse impacts.
- Involve community and business leaders in transportation projects and programs to ensure that local concerns are addressed.
- Avoid, minimize or mitigate the impact of transportation improvements on parks, recreation areas, historic sites, and other **scenic or cultural resources** and minimize impact on overall community character.
- Support transportation projects consistent with **Local Comprehensive Plans**.
- Implement projects in the Transportation Improvement Program (TIP) consistent with the goal. Specifically:
- 25% of TIP target projects should improve access to or within community activity centers
- The potential impacts of sea level rise should be evaluated for all TIP projects during the 25% design review and adjustments to projects should be made as warranted
- All TIP projects should provide opportunities for local input including public meeting prior to development of design plans and throughout the design process and take into consideration the project's Placetype location

Additionally, in support of this goal, the Cape Cod MPO supports the following policies:

- Design of all TIP projects shall consider the **environmental, historic, and cultural context** in which a project they are being proposed. The eight Cape Cod Placetypes articulated in the RPP may be helpful in identifying the defining characteristics and context of a given project.

- Consistent with current MassDOT sign policy, **business logo signs** shall not be allowed on Route 6 east of the Cape Cod Canal. "Sponsor a highway" signs with business logos may be allowed at the discretion of the MassDOT District Office Director.
- For all TIP projects, potential **impacts of sea level rise**, any mitigating actions to be taken, and/or reasons such actions are infeasible shall be identified by the design engineer and included in the design plans.
- All TIP projects shall provide opportunities for **local input** including public meetings prior to development of design plans and throughout the design process.

Multimodal Options/Healthy Transportation

In October 2012 MassDOT announced an ambitious Mode Shift Goal of tripling mode share by walking, bicycling, and transit by 2030. In support of this goal, the Healthy Transportation Policy Directive was issued in September 2013 requiring that all MassDOT projects are designed and implemented in a way that all our customers have access to safe and comfortable healthy transportation options at all MassDOT facilities and in all the services. The recent Massachusetts Bicycle Transportation Plan[11] and Pedestrian Transportation Plan[12] build on these efforts with actionable recommendations.

As a region, Cape Cod has always been supportive of varied and healthy transportation options. Whether by choice or necessity, moving around the region without a personal automobile is critical to many users of the transportation system.

GOAL 4: PROVIDES A VARIETY OF HEALTHY TRANSPORTATION OPTIONS TO ALL USERS

Objectives:

- Improve accessibility of all modes to all users
- Expand the sidewalk and bicycle network and close gaps in these networks
- Improve coordination between all modes
- Increase the share of travel by means other than the single occupancy vehicle

Strategies aimed at achieving the objectives under this goal include:

[11] https://www.mass.gov/service-details/bicycle-plan

[12] https://www.mass.gov/service-details/pedestrian-plan

- **"Complete Streets"** designs are encouraged to accommodate all users including pedestrians, bicyclists, persons in wheelchairs or strollers, public transportation users, and motorists.
- Sufficient **mobility** must be provided to ensure that individuals and freight can travel safely and efficiently among the communities of Cape Cod and their neighbors.
- **Examine expansion of bus, rail and bicycle services** and infrastructure to villages and town centers currently un-served by alternative transportation modes.
- **Provide bicycle amenities**, such as racks and/or lockers, at park-and-ride lots, transit centers, and village centers that support bicycle networks.
- Assess ADA compliance of signalized and circular intersections and work to increase the number of **ADA-compliant intersections**.
- **Coordinate public transportation** services and schedules between regions and between providers to decrease wait times for users during connections.
- Focus on closing gaps in the bicycle and pedestrian network identified in previous analysis of **connections to transit routes and village centers**.
- Implement projects in the Transportation Improvement Program (TIP) consistent with the goal. Specifically:
- TIP projects should increase the number of ADA-compliant signalized and circular intersections by 10% in 10 years
- TIP projects should close 5 gaps in the bicycle or pedestrian network every 5 years

Congestion Reduction

Congestion has significant adverse impacts on the movement of people and goods. Delay and poor travel time reliability negatively impact the economy and can lead to driver frustration and safety concerns. Congestion affects all modes of travel including the personal automobile, public transportation vehicles, bicycles, and pedestrians. Additionally, congestion affects other entities, such as businesses that rely on transportation access for their employees and customers. Congestion also produces more air pollution and increases greenhouse gas emissions that contribute to global warming and decreases the overall attractiveness of the region.

The objectives and performance measures under this goal are a key part of a comprehensive Congestion Management Process (CMP) for the region.

GOAL 5: REDUCE CONGESTION AND IMPROVE TRAVEL TIME RELIABILITY

Objectives:

- Reduce delay for all modes
- Improve connectivity and reliability for all modes of transportation

- Minimize the impacts of construction delays on all users, particularly impacts of Cape Cod Canal Bridge maintenance

Strategies aimed at achieving the objectives under this goal include:

- Support the implementation of **advanced construction techniques** for Cape Cod Canal Bridge maintenance projects to reduce construction impacts compared to standard construction practices
- Consider strategies to **address the behavioral causes** of traffic congestion such as VMT reduction strategies as well as changes to transportation infrastructure.
- Where possible, **incorporate the Congestion Management Process**, including new roadways, intersection improvements, park-and-ride, and transit capacity, into transportation projects and programs.
- **Support all strategies** for transportation demand management including, but not limited to, Transportation Management Associations, flexible hours, carpooling, bus pass programs, preferential parking, and telecommuting.
- Encourage **transit-oriented development** and provide alternatives to automobile travel by linking land use decisions with transit, bikeway, pedestrian, and park-and-ride investments.
- Consider the feasibility of **congestion pricing** on major routes on Cape Cod.
- Assess the capacity of Cape Cod's ports and harbors in accommodating ferry traffic and recommend strategies to solve existing **ferry congestion** or prevent future congestion.
- Examine the **road traffic around Cape Cod's ports and harbors** to determine the ability of the current infrastructure to accommodate ferry-related auto traffic
- Assess the capacity of Cape Cod's airports in accommodating air traffic and recommend strategies to solve existing **air traffic congestion** or prevent future congestion.
- Examine the **road traffic around Cape Cod's airports** to determine the ability of the current infrastructure to accommodate air-related auto traffic.
- **Coordinate public transportation** services and schedules between regions and between providers to decrease wait times for users during connections.
- Encourage the Army Corps of Engineers to implement all feasible **advanced construction techniques** for Cape Cod Canal Bridge maintenance projects to reduce construction impacts. This should include, at a minimum, consideration of night work, 24-hour work schedules, innovative bid review and contracting practices such as incentives-disincentive clauses13.

[13] Work Zone Road User Costs: Concepts and Applications, December 2011, US Department of Transportation and Federal Highway Administration Publication No. FHWA-HOP-12-005, Available at: http://www.ops.fhwa.dot.gov/wz/resources/publications/fhwahop12005/fhwahop12005.pdf

- Implement projects in the Transportation Improvement Program (TIP) consistent with the goal. Specifically: TIP projects should improve operations at 2 bottleneck locations every 5 years

Additionally, in support of this goal, the Cape Cod MPO supports the following policy:

- To reduce traffic congestion and facilitate free-flowing traffic, when developing intersection improvements involving signalization of a previously unsignalized location, construction of a **modern roundabout** shall be considered as one of the alternatives.

System Preservation

As transportation infrastructure on Cape Cod ages, maintenance and preservation efforts will be critical to maintaining a safe and functional transportation system. Many of the elements of the transportation system are near the end of their design life meaning that significant investments will be needed to extend their useful lives or replace these elements.

A critical look at allocating limited funding as well as a deployment of new and emerging technologies will be critical in meeting the challenges of future generations.

GOAL 6: PRESERVE, MAINTAIN, AND MODERNIZE THE EXISTING TRANSPORTATION SYSTEM

Objectives:

- Improve the condition of all state and municipally owned bridges
- Improve the pavement condition on all federal-aid eligible roadways
- Maintain and improve on and off-road bicycle and pedestrian facilities
- Use modern technology to improve the efficiency of the transportation system
- Improve coordination and cooperation between agencies throughout all phases of project development and implementation for all improvement and maintenance projects

Strategies aimed at achieving the objectives under this goal include:

- Reserve adequate funds for the maintenance of **alternative modes of transportation**, such as public transportation services, sidewalks, and bicycle paths.
- As transportation services are considered for areas subject to the effects of **sea-level rise**, new facilities shall be constructed with consideration to vulnerability.

- Create and implement asset management tools for **monitoring** and maintaining the existing transportation system. Include automatic traffic monitoring equipment as part of intersection upgrades.
- Support maintenance strategies and programs that **accommodate safe travel** throughout the transportation network, regardless of mode.
- Consider the **use of new technologies** that will lower costs, extend infrastructure life, lower environmental impacts, and reduce energy consumption and emissions.
- New transportation projects must consider inclusion of **intelligent transportation system (ITS)** elements, such as variable message signs, highway advisory radio, local television, web travel services, and smart signals that can provide travel data as well as react to changes in demand.
- Implement all feasible **advanced construction techniques** for Cape Cod Canal Bridge maintenance projects to reduce construction impacts. This should include, at a minimum, consideration of night work, 24-hour work schedules, innovative bid review and contracting practices such as incentives-disincentive clauses[14].
- Increase communications between agencies involved in transportation planning and utility operators to improve **coordination between utility planning and transportation planning**.
- Collaborate on the adoption of a memorandum of understanding between the MPO and MassDOT outlining how construction activities in the region (including maintenance projects) will be communicated to the MPO and how local input will be addressed by MassDOT

Freight Mobility

Safe and efficient movement of freight is critical to local economies.[15] The freight industry on Cape Cod is different from most areas because of the seasonal tourist industry, abundance of waterways, and historic culture. Congestion and poor travel time reliability affect the freight industry and, by extension, the local economics. Efforts to improve the freight network on Cape Cod will support long-term economic stability.[16] Truck travel time reliability performance measures can be found later in this chapter of the RTP.

[14] Work Zone Road User Costs: Concepts and Applications, December 2011, US Department of Transportation and Federal Highway Administration Publication No. FHWA-HOP-12-005, Available at: http://www.ops.fhwa.dot.gov/wz/resources/publications/fhwahop12005/fhwahop12005.pdf

[15] https://www.mass.gov/files/documents/2018/09/04/Freight%20Plan508.pdf

[16] http://www.capecodcommission.org/resources/transportation/2015-Freight_Study_02132015.pdf

GOAL 7: IMPROVE EFFICIENCY AND RELIABILITY OF FREIGHT MOVEMENT

Objectives:

- Reduce delays and improve travel time reliability on the freight network
- Minimize Cape Cod Canal bridge maintenance impacts

Strategies aimed at achieving the objectives under this goal include:

- **Enhance the transportation of freight on Cape Cod** to decrease travel times, increase reliability and lower costs for freight transportation providers, with minimal disruption to other transportation activities.
- Where possible, work to **consolidate freight** so as to move goods in the most efficient manner.
- Make available **multiple modes for freight transportation**, with infrastructure and facilities that are designed to support quick and efficient changes in mode.
- Consider inclusion of alternatives to freight traffic over the bridges (increased airport freight, short sea shipping, etc.)

SUMMARY OF POLICIES

As a collection, the policies contained within this document are an important element of the approach needed to achieve the overall vision of the region:

- For proposed roadways with cross-sections of four or more lanes, **landscaped median dividers shall be included** to provide a reasonable level of safety and access management.
- When developing intersection improvements involving signalization of a previously unsignalized location, construction of a **modern roundabout** shall be considered as one of the alternatives.
- As roadway improvement projects are developed, **stormwater management** techniques shall be included to manage and treat surface runoff. Stormwater Best Management Practices (BMP), including Low Impact Development (LID) where feasible, shall be followed. Stormwater treatment benefits of all TIP projects shall be quantified by the design engineer and included in the design plans.
- Consistent with current MassDOT sign policy, **business logo signs** shall not be allowed on Route 6 east of the Cape Cod Canal. "Adopt a highway" signs with business logos may be allowed at the discretion of the MassDOT District 5 Highway Director.
- For all TIP projects, potential **impacts of sea level rise**, any mitigating actions to be taken, and/or reasons such actions are infeasible shall be identified by the design engineer and included in the design plans.

- All TIP projects shall provide opportunities for **local input** including public meetings prior to development of design plans and throughout the design process.

FEDERALLY REQUIRED PERFORMANCE MEASURE SUMMARY

The US Department of Transportation (USDOT), in consultation with states, MPOs, and other stakeholders, established measures in performance areas relevant to the national goals. Table 6 lists federally required performance measures for the highway system and Table 7 lists federally required performance measures for the transit system.

TABLE 6. Federally Required Highway Performance Measures

NATIONAL GOAL	HIGHWAY PERFORMANCE AREA	PERFORMANCE MEASURE
Safety	Injuries and Fatalities	■ Number of fatalities ■ Fatality rate per 100 million vehicle-miles traveled ■ Number of serious injuries ■ Serious injury rate per 100 million vehicle-miles traveled ■ Number of non-motorized fatalities and non-motorized serious injuries
Infrastructure Condition	Pavement Condition	■ Percent of pavements on the Interstate System in good condition ■ Percent of pavements on the Interstate System in poor condition ■ Percent of pavements on the non-Interstate NHS in good condition ■ Percent of pavements on the non-Interstate NHS in poor condition
Infrastructure Condition	Bridge Condition	■ Percent of NHS bridges by deck area classified as in good condition ■ Percent of NHS bridges by deck area classified as in poor condition
System Reliability	Performance of the National Highway System	■ Percent of person-miles traveled on the Interstate System that are reliable ■ Percent of person-miles traveled on the non-Interstate NHS that are reliable
System Reliability, Freight Movement, and Economic Vitality	Freight Movement on the Interstate System	■ Truck Travel Time Reliability Index
Congestion Reduction	Traffic Congestion	■ Annual hours of peak hour excessive delay per capita (for travel on NHS roadways) ■ Percent of non-single-occupant vehicle travel
Environmental Sustainability	On-Road Mobile Source Emissions	■ Total emissions reductions

TABLE 7. Federally Required Transit Performance Measures

NATIONAL GOAL	TRANSIT PERFORMANCE AREA OR ASSET CATEGORY	PERFORMANCE MEASURE
Safety	Fatalities	■ Total number of reportable fatalities and rate per total vehicle revenue-miles by mode
Safety	Injuries	■ Total number of reportable injuries and rate per total vehicle revenue-miles by mode
Safety	Safety Events	■ Total number of reportable events and rate per total vehicle revenue-miles by mode
Safety	System Reliability	■ Mean distance between major mechanical failures by mode
Infrastructure Condition	Equipment	■ Percent of vehicles that have met or exceeded their Useful Life Benchmark (ULB)
Infrastructure Condition	Rolling Stock	■ Percent of revenue vehicles within a particular asset class that have met or exceeded their ULB
Infrastructure Condition	Infrastructure	■ Percent of track segments with performance restrictions
Infrastructure Condition	Facilities	■ Percent of facilities within an asset class rated below 3.0 on the Federal Transit Administration's Transit Economic Requirements Model scale

Targets for federally required performance measures must be set according to timelines established in the current federal transportation legislation.

Safety Performance Measures (PM1)

The Cape Cod MPO has chosen to adopt the statewide safety performance measure targets set by MassDOT for Calendar Year (CY) 2019. In setting these targets, MassDOT has followed FHWA guidelines by using statewide crash data and Highway Performance Monitoring System (HPMS) data for vehicle miles traveled (VMT) in order to calculate 5 year, rolling average trend lines for all FHWA-defined safety measures. For CY 2019 targets, four of the five safety measures—total number of fatalities, rate of fatalities per 100 million vehicle miles traveled, total number of incapacitating injuries, and rate of incapacitating injuries per 100 million VMT—were established by extending their trend lines into the 2015-2019 period. All four of these measures reflect a modest decrease in statewide trends. The fifth safety measure, the total number of combined incapacitating injuries and fatalities for non-motorized modes, is the only safety measure for which the statewide trend line depicts an increase. MassDOT's effort to increase non-motorized mode share throughout the Commonwealth has posed a challenge to simultaneously reducing non-motorized injuries and fatalities. Rather than adopt a target that depicts an increase in the trend line, MassDOT has elected to establish a target of non-motorized fatalities and injuries and for CY 2019 that remains constant from the rolling average for 2012–2016. In recent years, MassDOT and the Cape Cod MPO

have invested in "complete streets," bicycle and pedestrian infrastructure, intersection and safety improvements in both the Capital Investment Plan (CIP) and Statewide Transportation Improvement Program (STIP) to address increasing mode share and to incorporate safety mitigation elements into projects. Moving forward, the Cape Cod MPO, alongside MassDOT, is actively seeking to improve data collection and methodology for bicycle and pedestrian VMT counts and to continue analyzing crash clusters and crash counts that include both motorized and non-motorized modes in order to address safety issues at these locations.

In all safety categories, MassDOT has established a long-term target of "Toward Zero Deaths" through MassDOT's Performance Measures Tracker[17] and will be establishing safety targets for the MPO to consider for adoption each calendar year. While the MPO is not required by FHWA to report on annual safety performance targets, FHWA guidelines require MPOs to adopt MassDOT's annual targets or to establish their own each year.

The safety measures MassDOT has established for CY 2019, and the Cape Cod MPO has adopted, are as follows:

1. Fatalities: The target number of fatalities for years CY 2019 is 353, down from an average of 364 fatalities for the years 2012–2016. [See Figure 10. and Figure 11. for the Cape Cod trend and statewide trend for this performance measure]
2. Rate of Fatalities per 100 million VMT: The target fatality rate for years CY 2019 is 0.58, down from a 0.61 average for years 2012–2016. [See Figure 10. and Figure 11. for the Cape Cod trend and statewide trend for this performance measure]
3. Serious Injuries: The target number of incapacitating injuries for CY2019 is 2801, down from the average of 3146 for years 2012–2016. [See Figure 12. and Figure 13. for the Cape Cod trend and the statewide trend for this performance measure]
4. Rate of Incapacitating Injuries per 100 million VMT: The incapacitating injury rate target for CY2019 is 4.37 per year, down from the 5.24 average rate for years 2012–2016. [See Figure 12. Cape Cod Incapacitating Injury Trend (5-year Averages)Figure 12. and Figure 13. for the Cape Cod trend and the statewide trend for this performance measure]
5. Total Number of Combined Incapacitating Injuries and Fatalities for Non-Motorized Modes: The CY2019 target number of fatalities and incapacitating injuries for non-motorists is 541 per year, the same as the average for years 2012–2016. [See Figure 14. and Figure 15. for the Cape Cod trend and the statewide trend for this performance measure]

[17] https://www.mass.gov/lists/tracker-annual-performance-management-reports

FIGURE 10. Cape Cod Fatalities Trend (5-year Averages)

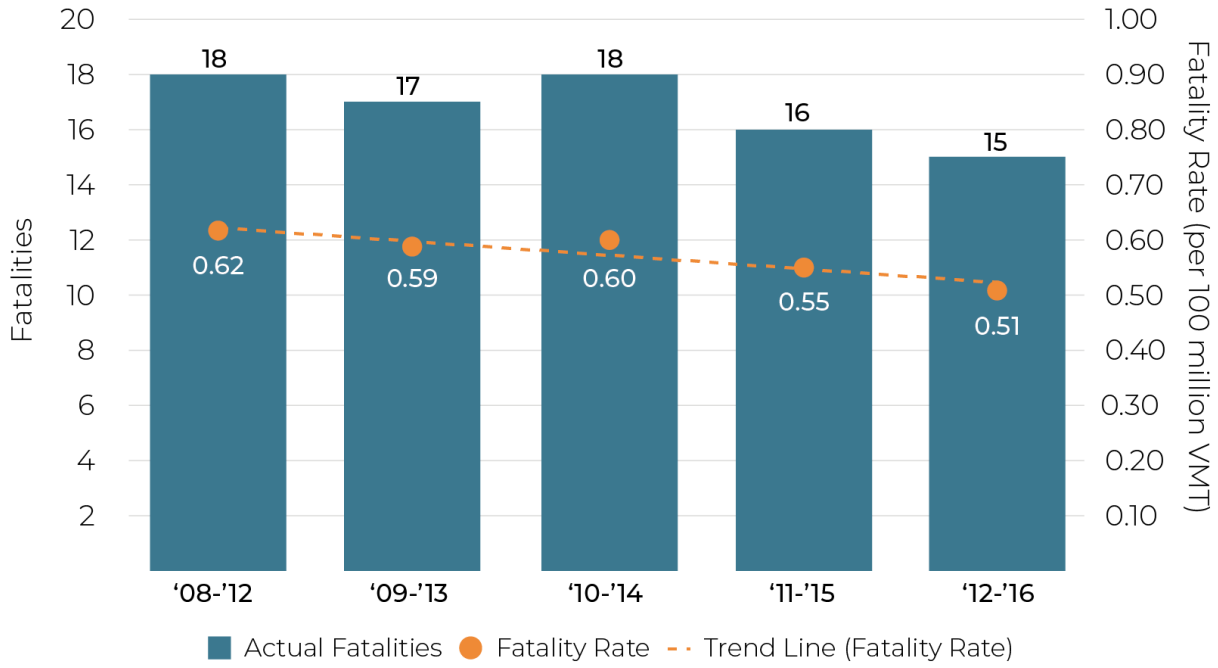


FIGURE 11. Statewide Fatalities Trend (5-year Averages)

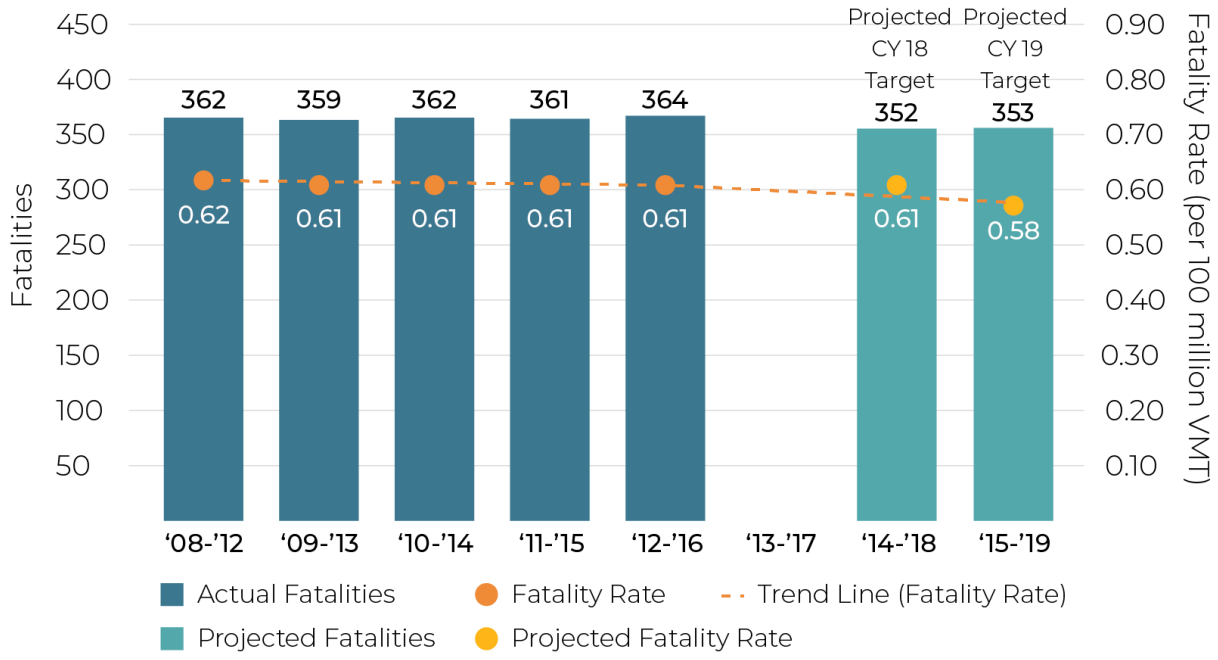


FIGURE 12. Cape Cod Incapacitating Injury Trend (5-year Averages)

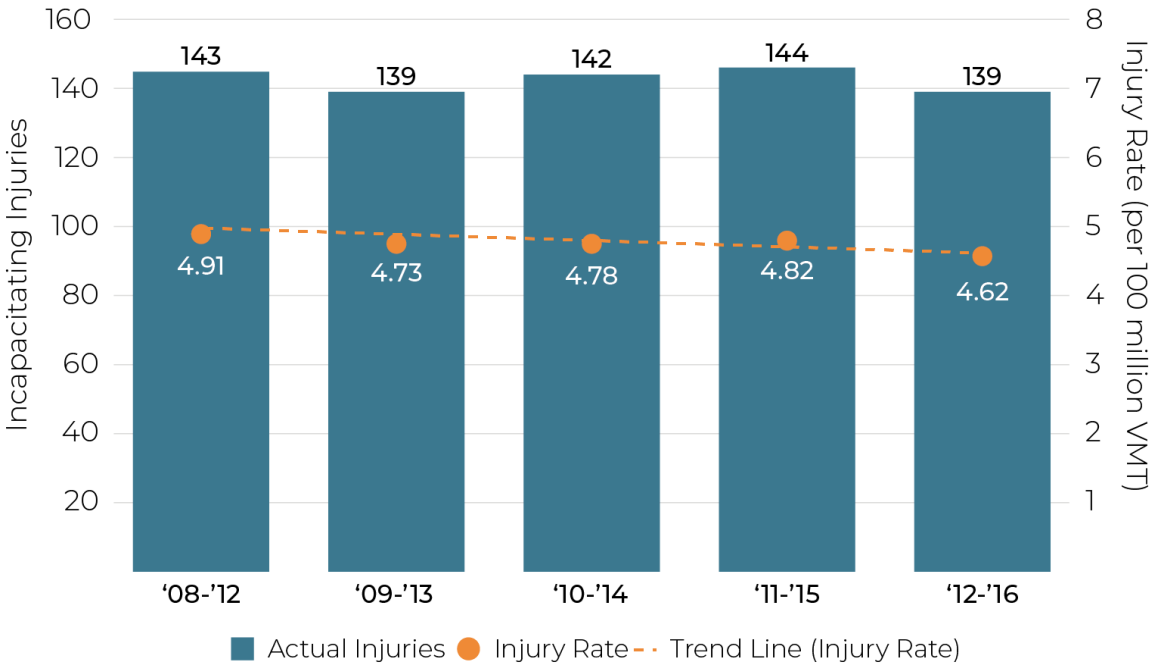


FIGURE 13. Statewide Incapacitating Injury Trend (5-year Averages)

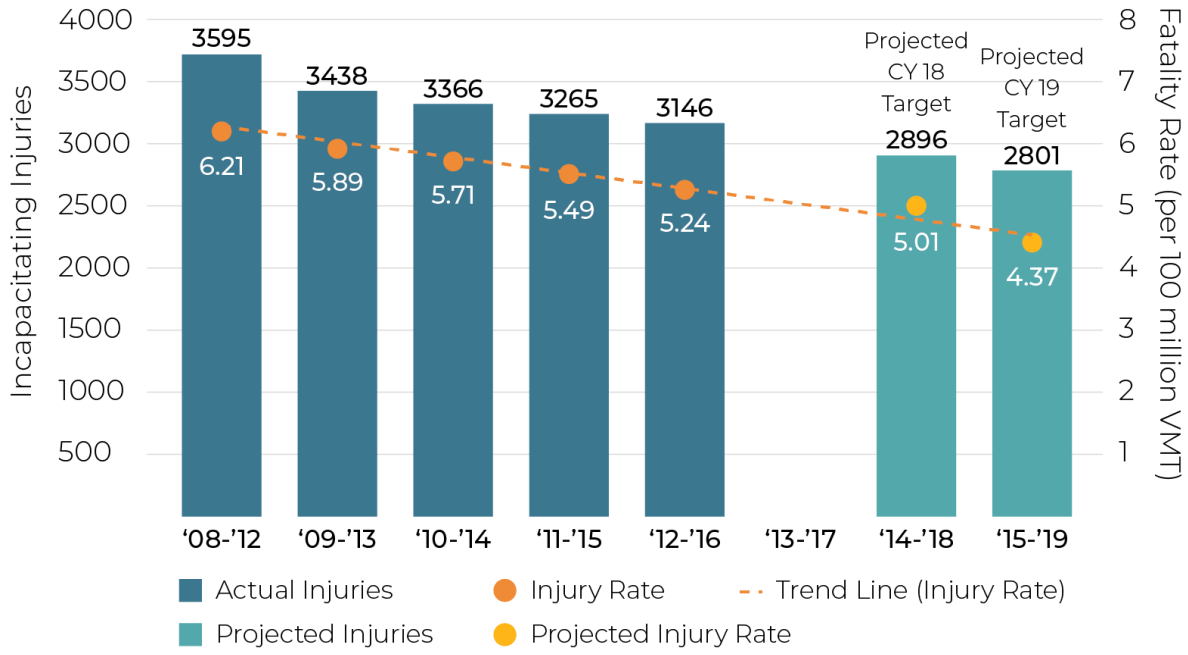


FIGURE 14. Cape Cod Non-Motorized Injury and Fatality Trend (5-year Averages)

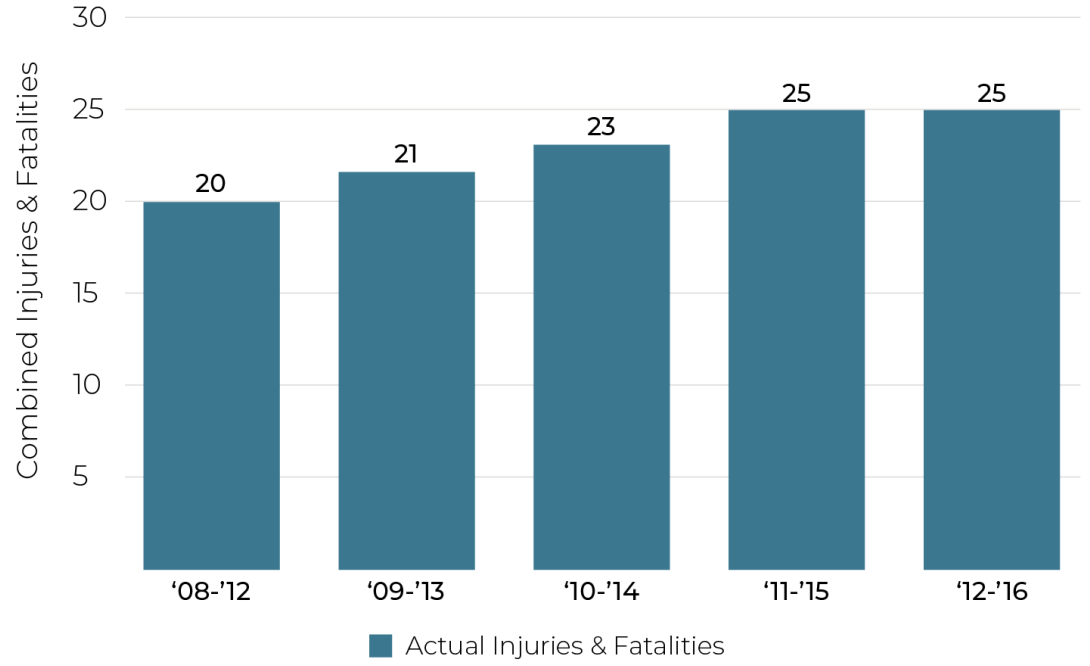
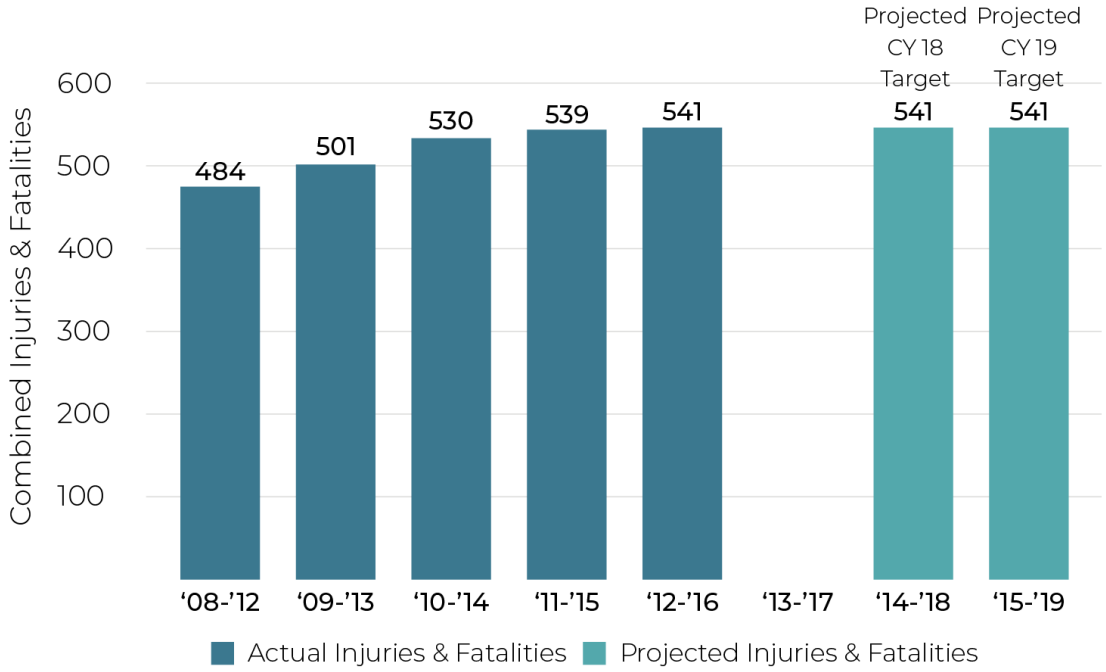


FIGURE 15. Statewide Non-Motorized Injury and Fatality Trend (5-year Averages)



Projects and programs identified in the Cape Cod Regional Transportation Plan and the Cape Cod Transportation Improvement Program are one way for the region to make strides towards achieving the region's safety targets. Anticipated motorist and non-motorist safety impacts are important criteria in the evaluation of projects considered for inclusion in the Cape Cod Transportation Improvement Program. The Cape Cod Regional Transportation Plan and the Cape Cod Transportation Improvement Program include projects that are anticipated to improve safety in a number of locations with demonstrated crash problems.

Bridge & Pavement Performance Measures (PM2)

The Cape Cod MPO has chosen to adopt the 2-year (2020) and 4-year (2022) statewide bridge and pavement performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by May 20th, 2018, with MPOs either adopting the statewide target or establishing their own by November 2018. In setting these targets, MassDOT has followed FHWA guidelines by measuring bridges and pavement condition using the 9-point National Bridge Inventory Standards (NBIS); the International Roughness Index (IRI); the presence of pavement rutting; and the presence of pavement cracking. 2-year and 4-year targets were set for six individual performance measures: percent of bridges in good condition; percent of bridges in poor condition; percent of Interstate pavement in good condition; percent of Interstate pavement in poor condition; percent of non-Interstate pavement in good condition; and percent of non-Interstate pavement in poor condition. All of the above performance measures are tracked in greater detail in MassDOT's Transportation Asset Management Plan (TAMP), which is due to be finalized in July 2019.

Targets for bridge-related performance measures were determined by identifying which bridge projects are programmed and projecting at what rate bridge conditions deteriorate. The bridge-related performance measures measure the percentage of deck area, rather than the total number of bridges.

Performance targets for pavement-related performance measures were based on a single year of data collection, and thus were set to remain steady under the guidance of FHWA. These measures are to be revisited at the 2-year mark (2020), once three years of data are available, for more informed target setting.

MassDOT continues to measure pavement quality and to set statewide short-term and long-term targets in the MassDOT Performance Management Tracker using the Pavement Serviceability Index (PSI), which differs from IRI. These measures and targets are used in conjunction with federal measures to inform program sizing and project selection.

TABLE 8. Bridge & Pavement Performance Measures (PM2) Target Summary

PERFORMANCE MEASURE	CURRENT (2017)	2-YEAR TARGET (2020)	4-YEAR TARGET (2022)
Bridges in good condition	15.22%	15%	16%
Bridges in poor condition	12.37%	13%	12%
Non-Interstate Pavement in good condition	32.9%	30%	30%
Non-Interstate Pavement in poor condition	31.4%	30%	30%

Note: Performance targets related to the Interstate System are not included in this table since there are no interstates in the Cape Cod region.

Projects and programs identified in the Cape Cod Regional Transportation Plan and the Cape Cod Transportation Improvement Program are one way for the region to make strides towards achieving the region's bridge and pavement performance targets. Asset condition is an important criterion in the evaluation of projects considered for inclusion in the Cape Cod Transportation Improvement Program. The Cape Cod Regional Transportation Plan and the Cape Cod Transportation Improvement Program include projects that are anticipated to improve roadway and pavement condition.

Reliability, Congestion, & Emissions Performance Measures (PM3)

The Cape Cod MPO chosen to adopt the 2-year (2020) and 4-year (2022) statewide reliability, congestion, and emissions performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by May 20th, 2018, with MPOs either adopting the statewide target or establishing their own by November 2018.

MassDOT followed FHWA regulation in measuring Level of Travel Time Reliability (LOTTR) on both the Interstate and non-Interstate NHS as well as Truck Travel Time Reliability (TTTR) on the Interstate system using the National Performance Management Research Dataset (NPMRDS) provided by FHWA. These performance measures aim to identify the predictability of travel times on the roadway network by comparing the average travel time along a given segment against longer travel times. For LOTTR, the performance of all segments of the Interstate and of the non-Interstate NHS are defined as either reliable or unreliable based on a comparison between the 50th percentile travel time and the 80th percentile travel time, and the proportion of reliable segments is reported. For TTTR, the ratio between the 50th percentile travel time and the 90th percentile travel time for trucks only along the Interstate system is reported as a statewide measure. As this data set has but one year of consistent data, FHWA guidance has been to set conservative targets and to adjust future targets once more data becomes available. To that end, MassDOT's reliability performance targets are set to remain the same.

Emissions reduction targets are measured as the sum total of all emissions reductions anticipated through CMAQ-funded projects in non-attainment or air quality maintenance areas (currently the cities of Lowell, Springfield, Waltham, and Worcester, and the town of Oak Bluffs) identified in the Statewide Transportation Improvement Program (STIP). This anticipated emissions reduction is calculated using the existing CMAQ processes.

TABLE 9. Reliability, Congestion, & Emissions Performance Measures (PM3) Target Summary

PERFORMANCE MEASURE	CURRENT (2017)	2-YEAR TARGET (2020)	4-YEAR TARGET (2022)
Non-Interstate LOTTR	80%	80%	80%
TTTR	1.85	1.85	1.85

Note: Performance targets not applicable to Cape Cod have been excluded from this table.

Transit Asset Management Measures and Targets

Transit Asset Management (TAM) is a business model that uses the condition of assets to guide optimal prioritization of funding at transit properties in order to keep our transit networks in a state of Good Repair (SGR).

Federal legislation requires all recipients of FTA funding to develop a TAM Plan and update the plan every four years. The Cape Cod Regional Transit Authority (CCRTA) is required to develop agency-specific TAM targets and the Cape Cod MPO is required to develop regional targets. The Cape Cod MPO has adopted CCRTA's FY 2019 CCRTA TAM targets for the Cape Cod region as represented in Table 10.

TABLE 10. Cape Cod Transit Asset Management Performance Measures and Targets

CATEGORY	CLASS	NUMBER	MEASURE	FY2018 PERFORMANCE	FY2019 TARGET
Rolling Stock	Bus	28	% at or past ULB	0%	0%
Rolling Stock	Cutaway Bus	100	% at or past ULB	1%	10%
Rolling Stock	Vans	7	% at or past ULB	0%	0%
Equipment	Service Vehicle/Trucks	10	% at or past ULB	40%	50%
Facilities	Maintenance	1	% under 3.0 on TERM scale	0%	0%
Facilities	Passenger Facilities	1	% under 3.0 on TERM scale	0%	0%

Note: Useful Life Benchmark (ULB) is defined by FTA as "the expected lifecycle of a capital asset for a particular transit provider's operating environment, or the acceptable period of use in service for a particular transit provider's operating environment." The CCRTA uses the FTA benchmark criteria for its analyses. For example, FTA's default ULB value for a bus is 14 years. FTA's Transit Economic Requirements Model (TERM) scale, which pertains to the facilities measure, is a rating system that describes asset condition. The scale values are 1 (poor), 2 (marginal), 3 (adequate), 4 (good), and 5 (excellent).

REGIONAL TRANSPORTATION PLAN PERFORMANCE MEASURES

In order to determine if the objectives of the RTP are being achieved, progress must be tracked in reaching the performance targets. By preparing and regularly updating a performance report annually, adjustments to the approach can be made.

Table 11 presents regional performance measures and targets derived from the goals and objectives of the RTP. Many of the performance measures identified are tied to multiple goals.

Baseline (2020) performance is reported for performance measures where data is currently available. Some data will be utilized from the MassDOT's Annual Performance Management Report

Tracker[18]. A near-term action item coming out of this RTP will be the development of baseline assessments for performance measures where data is currently unavailable. This effort may be included in the Cape Cod Unified Planning Work Program.

TABLE 11. Regional Performance Measures and Targets

SYSTEM MEASURES	EXISTING 2020	2030 TARGETS	% CHANGE	LONG-TERM TARGET
Number of crashes (per year)[1,2]	5,324	4,792	-10%	Move towards 0
Number of serious injury crashes (per year)[1,2]	122	110	-10%	Move towards 0
Serious injury crash rate per 100 Million VMT[1,2]	4.056	3.6504	-10%	Move towards 0
Number of fatal crashes (per year)[1,2]	17	15	-10%	Move towards 0
Fatal crash rate per 100 Million VMT[1,2]	0.585	0.5265	-10%	Move towards 0
Younger driver crashes (per year)[1,2]	1,577	1,420	-10%	Move towards 0
Older driver crashes (per year)[1,2]	1,471	1,324	-10%	Move towards 0
Bicycle and/ pedestrian crashes (per year)[1,2]	182	164	-10%	Move towards 0
Percent of signalized intersections[4] with pedestrian signal heads (some improvements needed for full ADA compliance)	65%	75%	+10%	100% with full ADA compliance
Percent of Route 28 transit corridor that does not have sidewalks	46.73%	36.73%	-10%	0%
Mode share - walking, bicycling, and transit	4.5%	13.5%	X 3	
Cape Cod multimodal congestion index-measure as developed in Congestion Management Plan				
Number of structurally deficient bridges	3	0	-3	0
Percent of roadway mileage[6] in fair or better condition	80.0%	85.0%	+5%	>95%
Number of active permanent counting stations	11	21	+10	
Parcels connected to the sidewalk network[7]				
Population within a half-mile of fixed route transit service				
Number of Electric Vehicle (EV) charging stations	39	100	+156%	

Notes: 1 - Based on 5-year rolling average, 2 - Existing based on most recent available data (2012-2016),

[18] https://www.mass.gov/lists/tracker-annual-performance-management-reports

3 - Regional VMT analysis currently under development, 4 - Signalized intersections, 5 - Will be inventoried as part of planned system assessments, 6 - Federal-aid eligible roads, ADA = Americans with Disabilities Act, CMAQ = Congestion Mitigation and Air Quality, HSIP =Highway Safety Improvement Program, GHG = greenhouse gases, MOU = Memorandum of Understanding, TIP = Transportation Improvement Program, VMT = vehicle miles travelled, 7 - Corresponds directly to the Cape Cod Commission Regional Policy Plan (RPP)

Chapter 3: Cape Cod and Transportation: Past, Present, and Future

Cape Cod and its transportation system is a story of a continually evolving community with ever-changing transportation needs. This chapter will touch on how the region arrived where it is today, what today's transportation landscape looks like, and what are the challenges and opportunities that lie ahead. Throughout the chapter there will be references to the appendices of the document where additional detail on any particular topic can be found.

PAST - HISTORICAL CONTEXT

The first recorded European expedition to Cape Cod was led by Bartholomew Gosnold, who was credited with naming the peninsula in 1602. In 1620, the Pilgrims landed at Provincetown. This was different than previous European appearances because the Pilgrims were more interested in settling somewhere, rather than exploring and trading with the native Wampanoag tribe. Although this is how we traditionally tell the story of Cape Cod's history, it actually extends long before that.

The following sections highlight some of the key developments in the transportation network on Cape Cod with thanks to the Massachusetts Historical Commission for much of the research work.[19] Additional detail is provided in Appendix A as well as available on Cape Cod Commission Chronology viewer available at: www.capecodcommission.org/chronology/

[19] *Historic & Archeological Resources of Cape Cod & the Islands*. Massachusetts Historical Commission. Originally published August 1986. PDF reprint version, 2007.

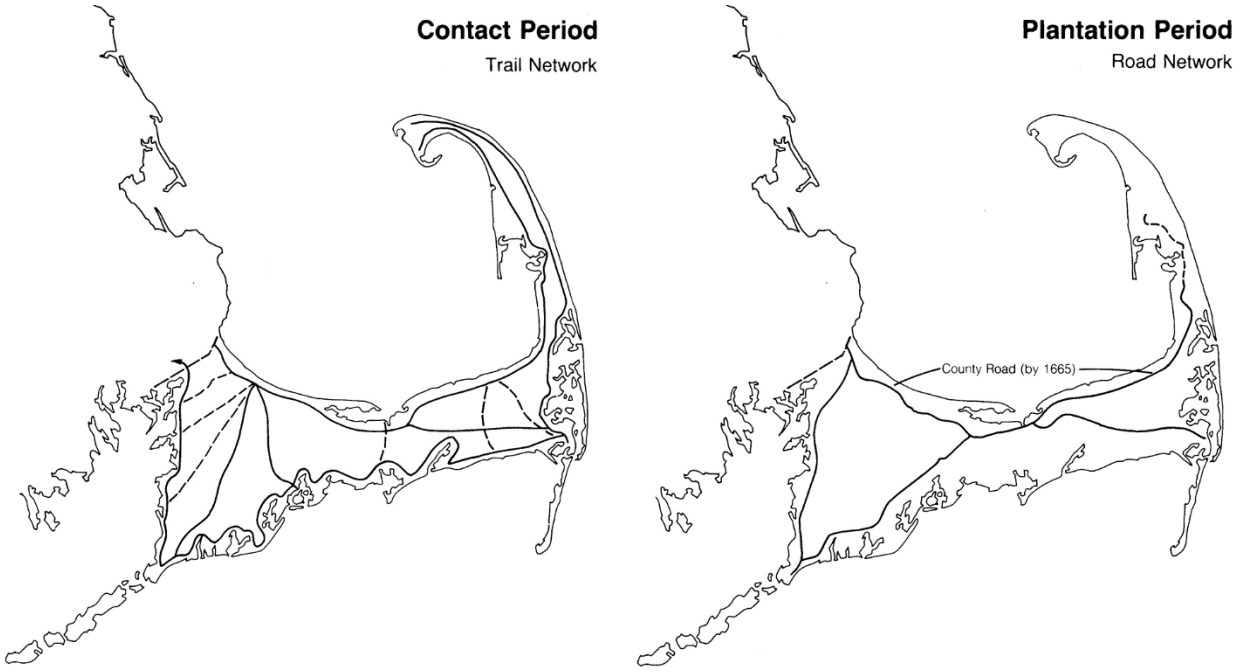
Early Trail and Road Network

CONTACT (1500 - 1620) AND PLANTATION (1620 - 1692) PERIODS

By the time the Pilgrims arrived, there was an extensive trail network stretching from one end of the region to the other as shown in Contact Period map in Figure 16. Even this far back, we can see connections that would eventually become the road network of Cape Cod. As Native Americans and

Europeans used the network more extensively; trails were upgraded to cartpaths or roadways. As shown in Figure 16. portions of present-day Route 6A took shape as County Road.

FIGURE 16. Early Trail and Road Network[19]



Solid lines on maps represent primary roads while dotted lines indicate secondary roads.

Expansion of Water Routes

COLONIAL (1692 - 1775) AND FEDERAL (1775-1830) PERIODS

As local transportation and commerce increased, water routes were the life blood of the region. Land routes were improved, widened, and expanded to support connection to the ports. Figure 17 shows the expansion of the road network and connection to water routes in these periods.

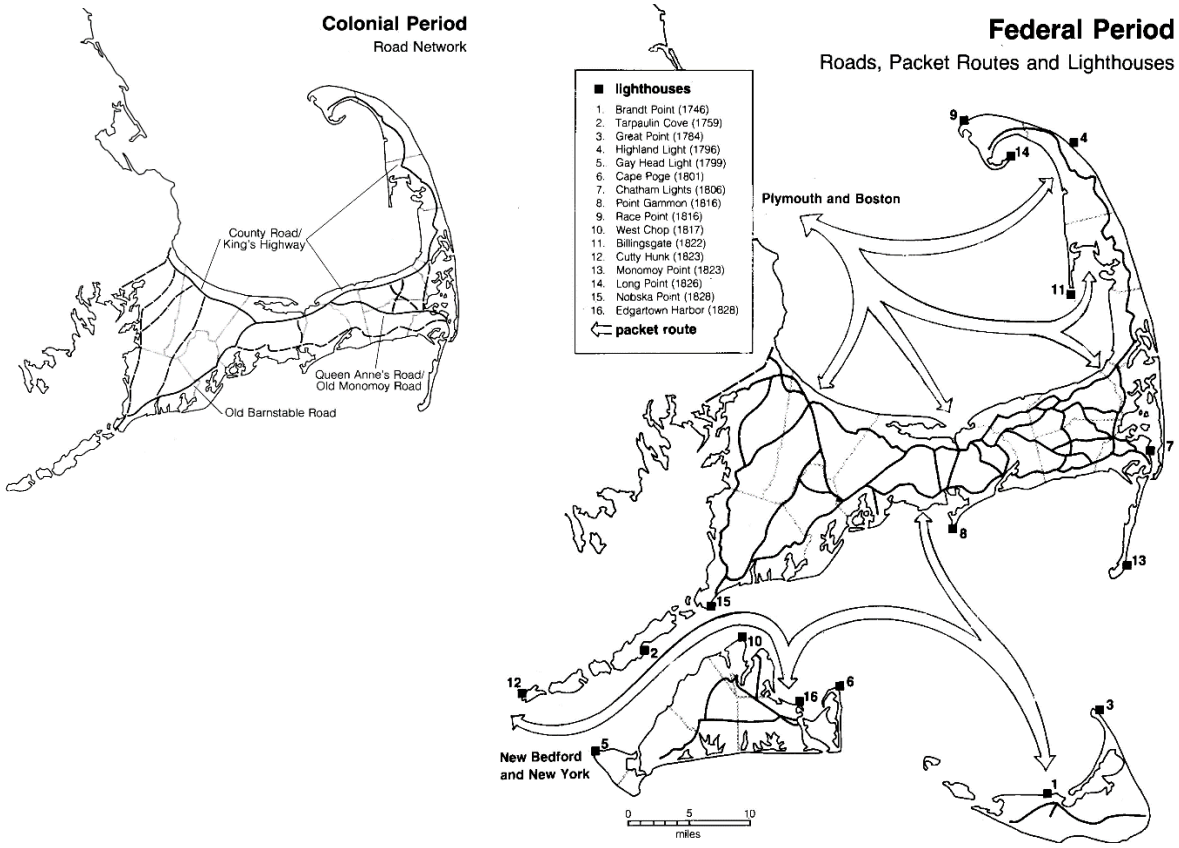


FIGURE 17. Expansion of Water Routes and Land Connections on Cape Cod[19]

Expansion of Railroads

EARLY AND LATE INDUSTRIAL PERIODS (1830-1915)

The industrial period saw the development and expansion of railroads across the region. Still tied to major ports, as shown in Figure 18, rail served both freight needs as well as the emerging tourism market.

This period saw multiple expansions of the rail network ultimately including connections to almost every town on Cape Cod. As the rail network expanded, development grew up around the train depot. These pockets of development thrived while rail transportation dominated the region. As the predominance of rail waned, some of these developments evolved to meet new needs while others did not.

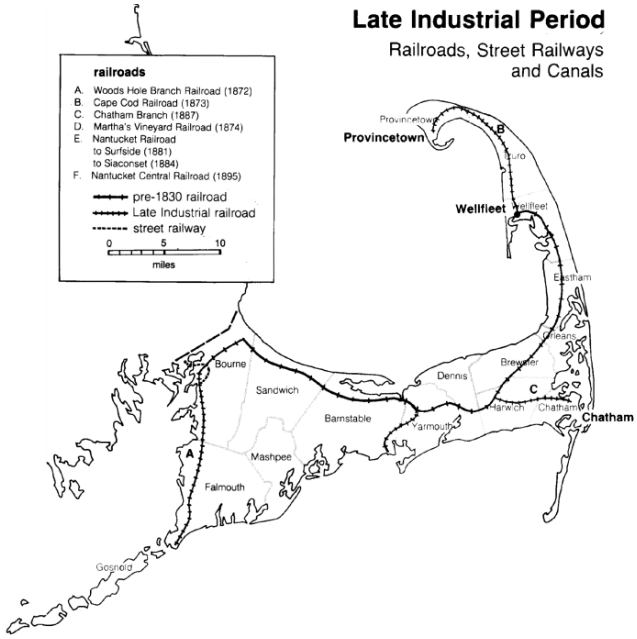


FIGURE 18. Rail Expansion[19]

Age of the Automobile

MODERN PERIOD TO PRESENT DAY (1915-)

The emergence of the automobile and tourism industry on Cape Cod forever changed the transportation network of the region. Construction of the Cape Cod Canal redefined the transportation landscape of the region. Expanding from the Cape Cod Canal, the transportation system was significantly expanded and modernized during the 20th century. As shown in Table 12, some of greatest expansions occurred in the 1950's.

TABLE 12. Industrial Period Infrastructure Expansion

YEAR	MILESTONE
1935	Bourne, Sagamore, and Railroad bridges over the Cape Cod Canal
1950	Rt. 6: Sagamore Bridge to Hyannis (exit 6) – 2 lanes
1954	Rt. 6: Sagamore Bridge to Hyannis (exit 6) – 4 lanes
1955	Rt. 6: Hyannis (exit 6) to Dennis (exit 9) – 2 lanes
1956	Rt. 6: Dennis (exit 9) to Harwich/Brewster (exit 11) – 2 lanes
1958	Rt. 6: Harwich/Brewster (exit 11) to Orleans (exit 12) – 2 lanes
1959	Rt. 6: Orleans (exit 12) to Orleans/Eastham Rotary – 2 lanes
1967	Rt. 6: Hyannis (exit 6) to Yarmouth (exit 7) – 4 lanes
1971	Rt. 6: Yarmouth (exit 7) to Dennis (exit 9) – 4 lanes

Sixty-five years after that great expansion, the region is struggling to face the tomorrow's challenges with an aging transportation network. While there is debate over whether we are still in the age of the automobile, it is clear that investments in all modes are required to meet the region's future transportation needs.

PRESENT – EXISTING CHALLENGES AND OPPORTUNITIES

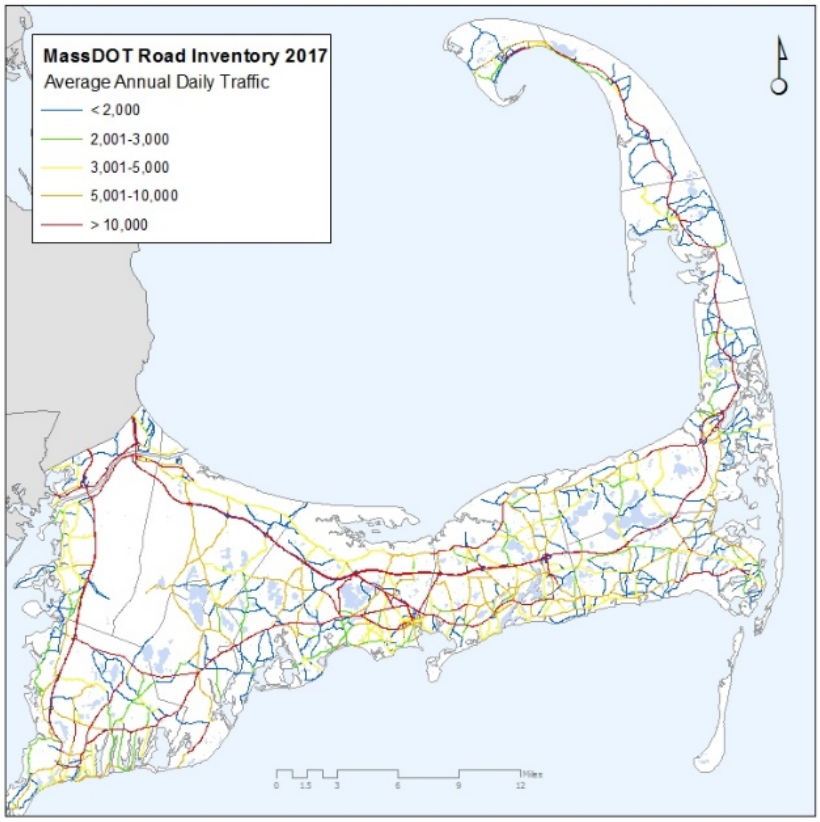
Existing Infrastructure

The transportation network on Cape Cod is made up of a wide variety of infrastructure that support travel by all modes. Summarized in this section, the existing condition of the transportation network is detailed in Appendix B.

VEHICLE INFRASTRUCTURE

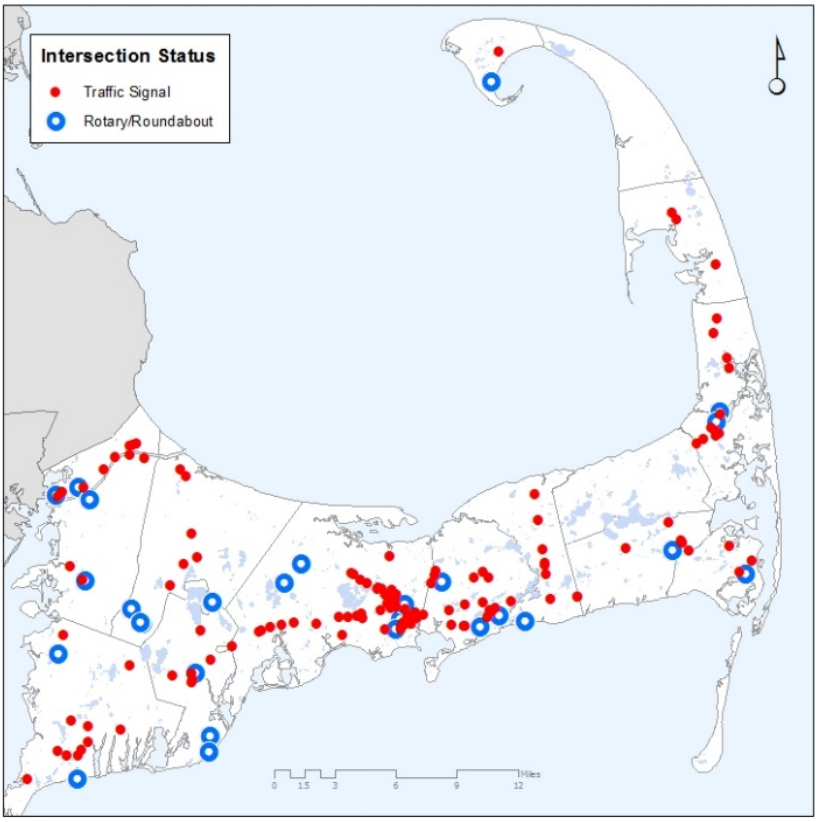
Roads: Cape Cod's three major routes, Route 6, Route 28, and Route 6A, comprise less than 6% of Cape Cod's roads by mileage. Over 80% of the roadways on Cape Cod are local roadways. The volumes of vehicles on the roadways of Cape Cod are shown in Figure 19.

FIGURE 19. Annual Average Daily Traffic



Intersections: As shown in Figure 20. , 136 are signalized and 29 are circular on Cape Cod. Circular intersections refer to rotaries and roundabouts. Rotaries tend to be larger in diameter, and their interior travel speed is often faster than a modern roundabout. Roundabouts are identified by smaller diameters and approaches that enter at a greater angle than rotaries – encouraging slower speeds and improved safety.

FIGURE 20. Intersections



Bridges: There are 103 municipal and state-owned bridges on Cape Cod including bridges over roadways (49), over railways (12), and over water (42). Out of these 103 bridges, three are classified as structurally deficient based on the National Bridge Inventory rating scale.[20][21]

Intelligent Transportation Systems (ITS) are an emerging aspect of infrastructure that has surfaced on Cape Cod. Along Route 6, permanent message boards display travel time to exits on the roadway. Figure 21. shows one of these roadside signs. This information is processed using Bluetooth technology to calculate drive times. This information has been effective at reducing distraction and driver confusion by presenting valuable information to automobile drivers outside of content received by cellphones or GPS devices. The project began in 2012 with signage installed on Route 3 approaching Cape Cod and plans to expand statewide.

[20] http://www.fhwa.dot.gov/bridge/nbi.cfm

[21] Based on 2013 bridge assessment data for state highway agency and town agency owned bridges

FIGURE 21. Travel Time Signs



BUS INFRASTRUCTURE

Intermodal facilities and sites are important locations where travelers can make seamless transfers between different mode of travel including regional bus service and intercity bus service. These include the Hyannis Transportation Center, MacMillan Pier and Bus Depot, Falmouth Bus Depot, Woods Hole Steamship Authority Piers, Tedeschi Food Shop in Bourne, Sagamore Park-and-Ride Lot, Barnstable Park-and-Ride-Lot, Harwich Park-and-Ride Lot, and Hyannis Park-and-Ride Lot.

Interregional bus service transports travelers to and from Cape Cod. Some examples are bus service from Hyannis to New York City, or Boston to Provincetown. Users of interregional bus service include commuters who work in Boston, Logan Airport users, and those traveling or vacationing. Plymouth and Brockton Street Railway Company as well as Peter Pan and Bonanza Bus Lines serve Cape Cod's interregional bus service needs.

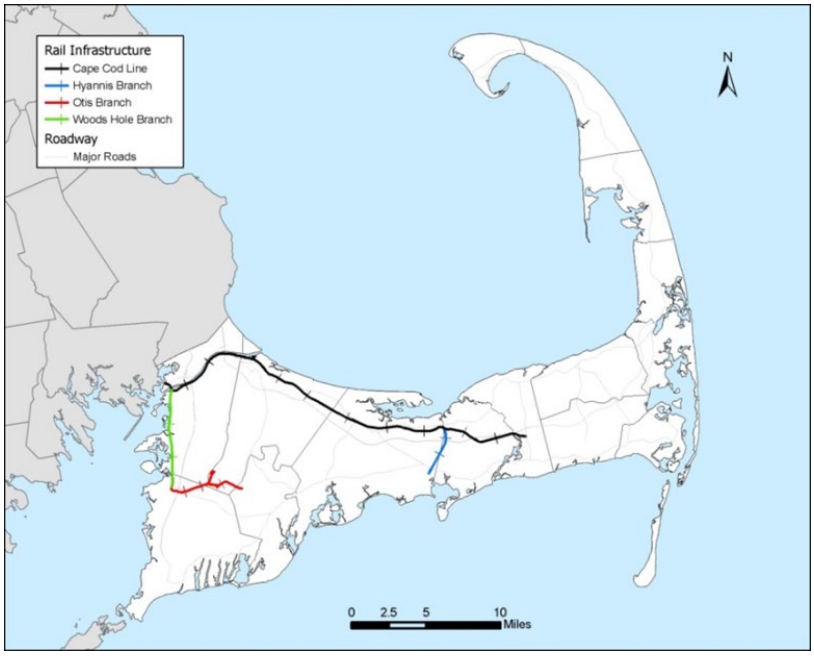
The Cape Cod Regional Transit Authority (CCRTA) is the agency in charge of operating and maintaining public transit services on Cape Cod. The CCRTA offers several types of services, including fixed route service, flexible route service, and demand-response or paratransit service. Some paratransit and demand response services are contracted services. Year-round fixed services routes include the Barnstable Villager, the Bourne Run, the Flex Route, the H2O Line, the Sandwich Line, and the Seamline. Seasonal services include the Hyannis Shuttle, the Provincetown/Truro Shuttle, and the WHOOSH Trolley. Demand-response service includes Dial-A-Ride Transportation (DART) and ADA Paratransit Service.

The Greater Attleboro-Taunton Regional Transit Authority (GATRA) also operates one line, the Onset-Wareham Link (OWL), with stops in Bourne.

RAIL INFRASTRUCTURE

Railways: Cape Cod has a single rail line, the Cape Cod Line, with three branches as shown in Figure 22. Together, they form a network of rail infrastructure to serve the freight services, scenic rail excursions, and CapeFLYER seasonal, weekend passenger service.

FIGURE 22. Cape Cod Rail Infrastructure



Rail infrastructure extended the entire length of Cape Cod, from Bourne to Provincetown, in the first half of the 1900s. Service was also available along the western end, extending from Bourne to Woods Hole in Falmouth, and to Chatham. Today the expanse and usage of rail is reduced. Active rail still exists starting in Bourne and ending in three locations, Joint Base Cape Cod, Hyannis, and Yarmouth.

Road Crossings: Exclusive rights-of-way can limit the interaction of rail and other modes, making rail transportation safer and faster. However, crossing at roadways can pose problems if the intersection is not properly signed and designed. Currently on Cape Cod, there are 66 at-grade roadway intersections along active rail lines. Some, such as the railroad crossing at Route 28 in Barnstable, can actually interfere with roadway traffic and cause congestion and delays. Of those, 21 are not gated, signalized or signed. Although most of these are minor roadways, they do represent a potential for mishap. Moreover, there are 18 grade separated roadway crossings, as well as 5 bridges over waterways along active rail lines. These bridges and overpasses must be maintained in order to ensure continued use. If rail service on Cape Cod is to be increased, further study of railroad crossings may be necessary to ensure safety and prevent interruptions to roadway traffic.

AVIATION INFRASTRUCTURE

For Cape Cod travelers, air transportation provides an important link from Cape Cod to Boston, New York, and the islands of Martha's Vineyard and Nantucket. Six airfields and airports serve Cape Cod as a base for air transportation (see Table 13).

TABLE 13. Airports and Airfields of Cape Cod

NAME	FAA IDENTIFIER	FACILITY TYPE
Barnstable Municipal Airport	HYA	Scheduled Air Carrier Service
Provincetown Municipal Airport	PVC	Scheduled Air Carrier Service
Chatham Municipal Airport	CQX	General Aviation
Falmouth Airpark	5B6	General Aviation
Cape Cod Airfield	2B1	General Aviation
Cape Cod Coast Guard Air Station	FMH	Military

The commercial service airports, Barnstable Municipal Airport and Provincetown Municipal Airport, supply data on total enplanements to the Federal Aviation Administration (FAA). In 2017, Barnstable Municipal Airport reported 29,455 enplanements and Provincetown Municipal Airport reported 8,900 enplanements.[22]

MARITIME INFRASTRUCTURE

Cape Cod has approximately 586 miles of tidal coastline, with many inlets and bays that provide marine access to the land. Major channels including the Cape Cod Canal, the Woods Hole Channel, and Nantucket Sounds Channels provide important connections for vessels. Major harbors including Woods Hole Harbor, Hyannis Harbor, Provincetown Harbor, Falmouth Harbor, Saquatucket Harbor (Harwich Port), Wellfleet Harbor, Stage Harbor (Chatham), Barnstable Harbor, Sandwich Marina, Red Brook Harbor (Bourne), and Sesuit Harbor (Dennis) provide connections to land-based transportation. The nine ferry routes provide connection from Falmouth (Falmouth Harbor and Woods Hole), Hyannis (Hyannis Harbor), Provincetown (Fisherman's Wharf), and Harwich Port (Saquatucket Harbor) to Martha's Vineyard, Nantucket, Boston, and Plymouth.

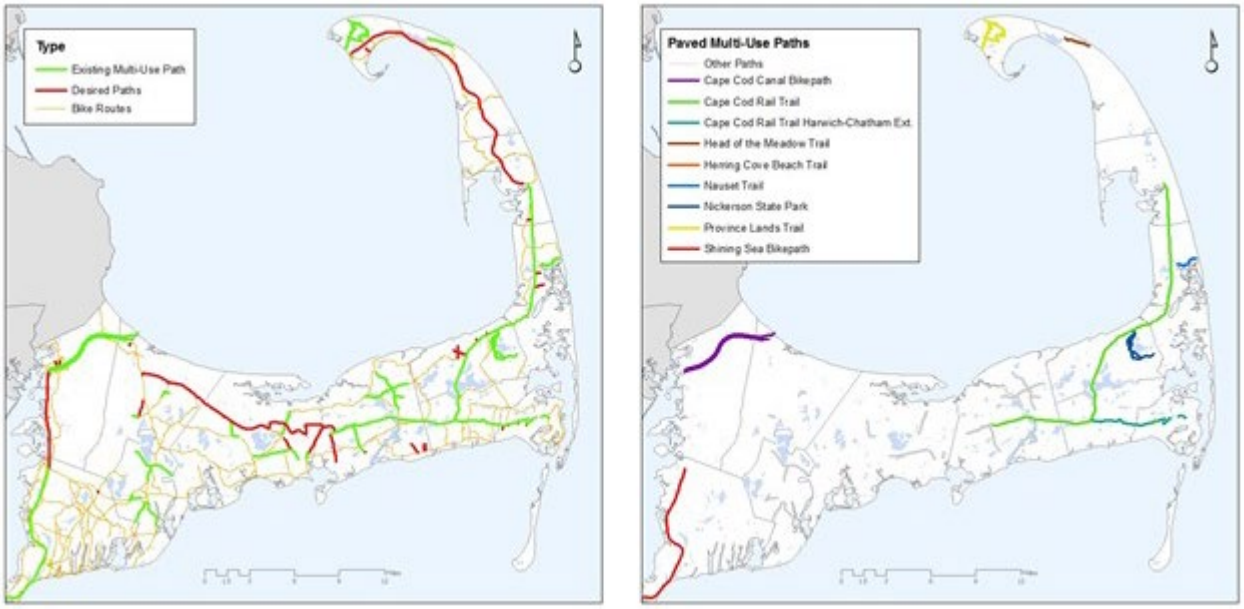
BICYCLE AND PEDESTRIAN INFRASTRUCTURE

There are numerous destinations and pathways for bicyclists and pedestrians to use on Cape Cod. There are three basic types of bicycle infrastructure: paths, lanes, and routes. Paths generally have their own separated right-of-way and follow certain standards for width, grade, and accessibility. Bicycle lanes are separate lanes within roadways marked for bicycle use. Bicycle routes are

[22] 2017 Air Carrier Activity Information System data

roadways with wide shoulders that have been designated for bicycle use. Figure 23. shows these facilities on Cape Cod.

FIGURE 23. Bicycle Paths and Routes

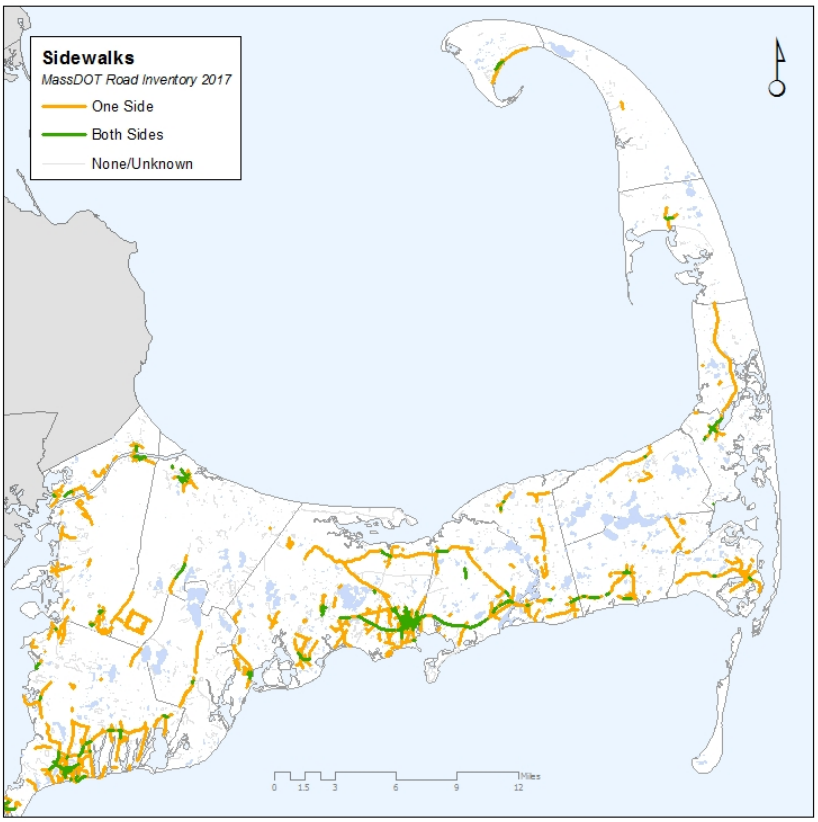


There are another 90 miles of multi-use paths on Cape Cod with the longest being the Cape Cod Rail Trail and Extension, Cape Cod Canal Bike Paths, Shining Sea Bikeway and Extension, and numerous paths in the Cape Cod National Seashore and Nickerson State Park.

Many bicycle routes exist on Cape Cod, some of which are better signed than others. They allow bicycle users a wide network of travel across Cape Cod. The Claire Saltonstall Bikeway, or State Bicycle Route 1, is a series of bicycle paths and on-street routes that travel from Boston to both Provincetown and Woods Hole. The Cape Cod section of the Claire Saltonstall Bikeway is 98.3 miles in length. The Bourne to Provincetown portion is about 75.4 miles long, while the Bourne to Woods Hole portion is 22.9 miles long.

Pedestrians utilize shared use paths and sidewalks. Facilities of this type support village centers and local businesses and encourage travelers to walk instead of driving. The Americans with Disabilities Act requires sidewalk curb cuts to be large enough and shallow enough for wheelchair usage. Telephone poles, road signs, and other architectural barriers must also be removed in order to create an unobstructed path for walking. In Massachusetts, bicyclists may ride on sidewalks outside business districts unless otherwise prohibited by local ordinances. As shown in Figure 24. , over 90% of Cape Cod roadways do not have sidewalks.

FIGURE 24. Cape Cod Sidewalk Network



The sidewalk network also includes crosswalks. Crosswalks provide a safe means for pedestrians and other sidewalk users to cross roadways. Generally, crosswalks located on lower volume roads have no traffic control devices, or a sign telling motorists to yield to pedestrians. However, many crosswalks have crossing signals that stop traffic, allow pedestrians to cross, and warn pedestrians when traffic is about to resume. Typically, crossing signals are located with traffic signals at roadway intersections.

Safety

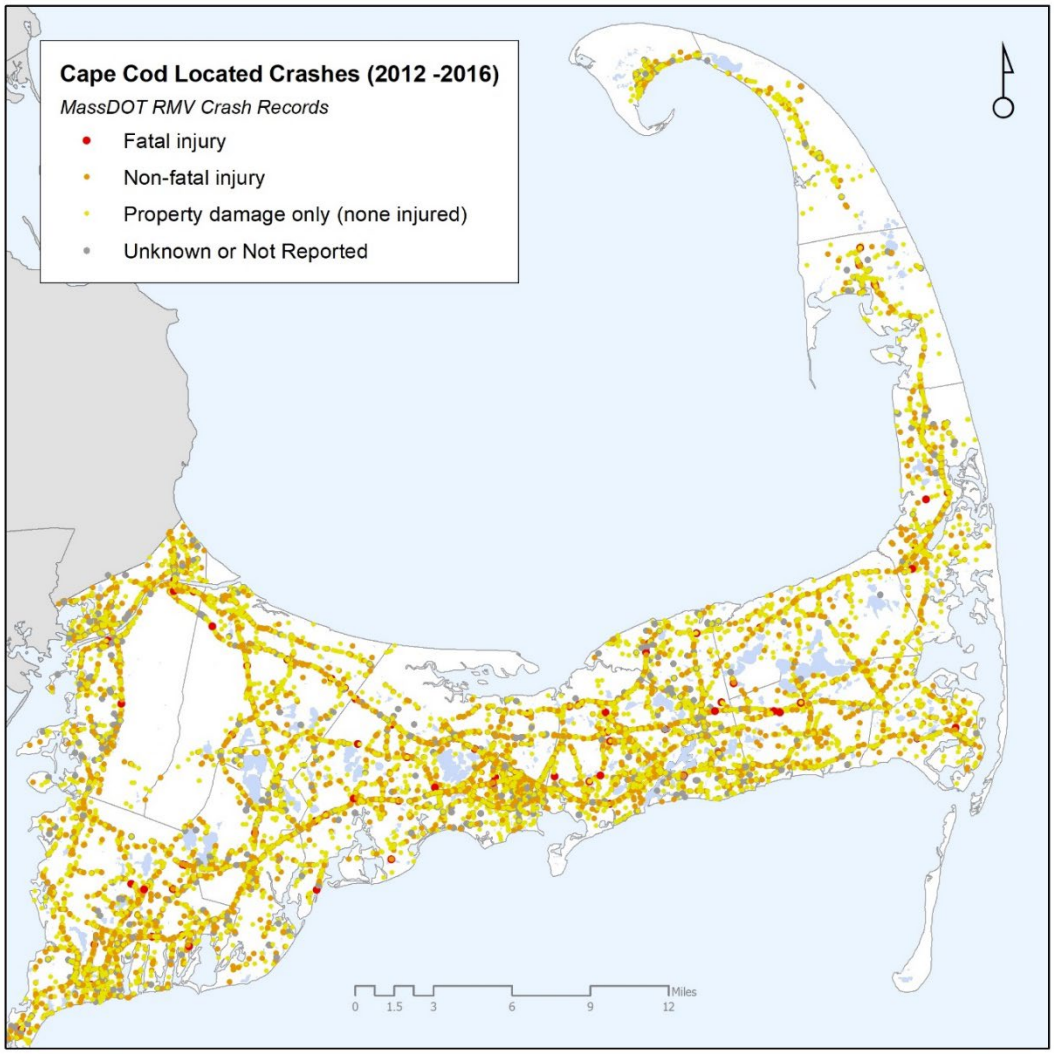
The concern over safety is made clear in the first goal of the Regional Transportation Plan:
"PROVIDE SAFE TRAVEL OPTIONS FOR ALL USERS"

Transportation users have a right to a transportation system where their person and possessions will arrive at their destinations unharmed and undamaged. Summarized in this section, Appendix B, provides additional detail on the seasonal and year-round issues affecting transportation safety on Cape Cod.

BARNSTABLE COUNTY HIGH CRASH LOCATIONS

In 2019, the Cape Cod Commission completed an effort to rank the top intersections of critical safety concern across Cape Cod. Base data for this analysis were provided by the Massachusetts Department of Transportation (MassDOT) in the form of geographically located crash clusters for the most recently available five years of data (2012-2016). The data provided by MassDOT included the number of reported crashes at each location and the severity of the crashes. It should be noted, however, that this dataset only includes incidents whose reports contained enough information to accurately locate them. There were 26,617 crashes reported during this five-year period. The incidents are mapped as shown in Figure 25.

FIGURE 25. Cape Cod Located Crashes (2012-2016)



CAPE COD DRIVERS

The demographics of Cape Cod depict a typical year-round resident that is older than the average population in the United States. A large and increasing percentage of Cape drivers are 65 and older. According to the Census Bureau 2017 estimates, 28.5% or 60,860 residents of Barnstable County are aged 65 or older. This steadily increasing proportion of drivers will experience declining vision, slowed decision making and reaction times, additional difficulty in dividing attention between potential conflicts and traffic information, and reductions in strength, flexibility, and overall fitness. In many cases, these difficulties will outweigh the additional experience that older drivers have operating an automobile. The large majority of drivers who suffer from age-related driving deficiencies are not aware that a problem exists.

Recommendations to accommodate older drivers include:

- Considering protected left turn phases at signalized intersections;
- Maintaining delineation through more frequent restriping and street cleaning;
- Improving signage standards to include larger lettering;
- Improving lighting level standards, in particular at intersections. Consider placing utilities underground and installing breakaway safety poles for lighting;
- Considering "all red" phases for signalized intersections;
- Establishing driver education programs for older drivers; and
- Providing education on other options for mobility.

On the roads with these older drivers is another group of drivers with a unique set of characteristics, younger drivers. Younger drivers are more prone to risk-taking behavior and are subject to influences of youth culture and peer pressure. Considering their exposure, young drivers involved in more fatal crashes than any other age group. There are slight differences between younger and older drivers in the types of crashes they experience. For example, young drivers have more speeding and alcohol-related crashes. Younger drivers' crashes are frequently caused by inexperience, poor judgment, and risk taking, while older drivers' crashes are more often related to reduced physical and cognitive capabilities.

Recommendations to accommodate younger driver safety issues are divided between residents and visitors:

- Increased education for local young drivers.
- Additional enforcement and warnings during the busy traffic season to reach out to young visitor drivers.
- Develop and implement an advertising campaign and roadside signage reminding drivers that traffic and drunk-driving laws are strictly enforced on Cape Cod.

SAFETY ANALYSIS AND RECOMMENDATIONS

Further analysis of crash data along with recommendations for reducing crashes on Cape Cod roadways is included in Appendix B. Additionally, analysis of bicycle and pedestrian crash and recommendations are presented in the Appendix F.

Security

Security is an important consideration when discussing the region's transportation network. Summarized in this section, Appendix D includes a discussion of the ways in which the transportation system is prepared to handle threats of any nature including natural events such as hurricanes as well and man-made hazards.

The most frequently identified security concern is the threat of a weather-related event such as a hurricane. In many cases, Cape Cod residents and visitors “shelter in place,” a term that refers to staying in homes or local shelters that are supplied with food, water, etc. Residents should heed warnings of public safety officials and evacuate accordingly. A “Cape Cod Emergency Traffic Plan” has been developed by the Massachusetts State Police in cooperation with the Massachusetts Emergency Management Agency and several other agencies to facilitate the egress of a high volume of traffic from Cape Cod in the event of a hurricane, particularly during peak tourist season.

Discussions of emergency traffic planning, public transportation security, air travel security, and intelligent transportation systems are also included in Appendix D.

Freight

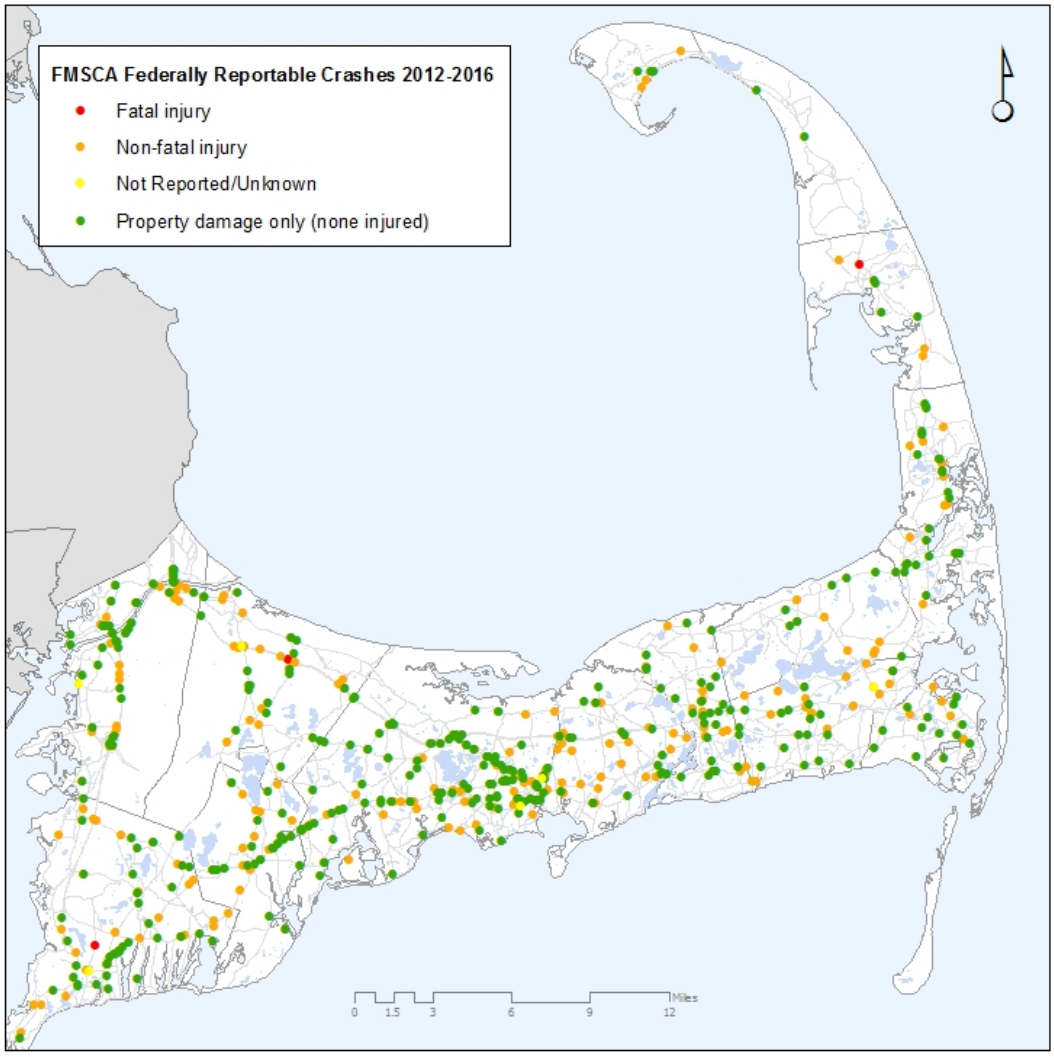
Safe and efficient movement of freight is critical to the local economies. Recognizing the importance of freight to the regional, the Cape Cod Commission conducted regional Freight Study in 2014. Summarized in this section, Appendix E, details some of the unique challenges the movement of freight on Cape Cod faces as well as identifies potential opportunity to improve the freight network on Cape Cod identified in the Freight Study.

There are over 250 miles of designated truck routes on Cape Cod. Freight transportation also relies on many roadways off their freight routes to make connection to their ultimate destinations.

Freight transportation presents unique safety challenges and crashes involving commercial motor vehicles deserve special consideration. As shown in Figure 26. freight crashes occur both on and off the designated truck routes on Cape Cod.

Freight by all modes, including truck, rail, and water are covered in Appendix E along with the results of a Freight Survey conducted as part of the 2014 Freight Study.

FIGURE 26. Truck Routes and Reported Crashes



Bicycle & Pedestrian

Bicyclists and pedestrians while having a minimal impact on the environment are our most vulnerable users and the most in need of providing a safe transportation network. Summarized in this section, Appendix F, details crashes, road safety audits, pedestrian safety and planning studies, planning tools, and planning efforts related to bicycles and pedestrians on Cape Cod.

CAPE COD BICYCLISTS AND PEDESTRIANS

To varying degrees, all travelers at some point in their journey are pedestrians. This occurs in the short walking trip from a parked car to a destination (or from a parked bicycle or after disembarking from a bus).

BICYCLE AND PEDESTRIAN CRASHES

Bicyclists and pedestrians face a number of challenges on Cape Cod roadways. The mixture of narrow roadways, high traffic volumes, and inconsistent accommodations create a great deal of difficultly for vehicle-bicycle and vehicle-pedestrian interactions. There was a total of 475 such crashes involving bicyclists and 435 such crashes involving pedestrians that occurred on Cape Cod from 2012 through 2016.[23] Additional crashes may have occurred between bicyclists and between bicyclists and pedestrians, but they often go unreported.

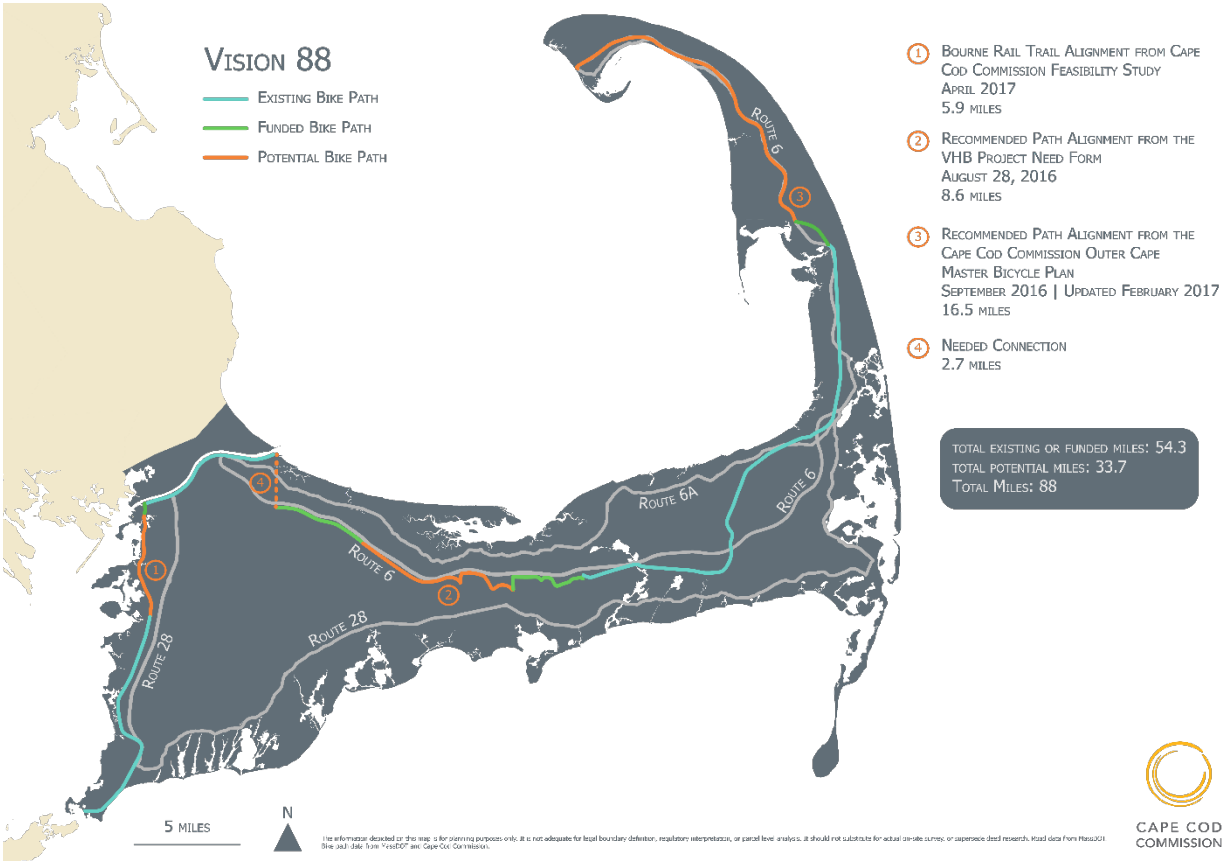
SHARED-USE PATH VISION

A priority for the region is providing improving on-road and off-road accommodation for bicyclists and pedestrians.

One means of improving these accommodations is by expanding the share-use path network as envisioned in Figure 27. Improved accommodation also comes from improved on-road bicycle routing and signage.

[23] MassDOT Registry of Motor Vehicle Crash Records

FIGURE 27. Shared-Use Path Vision



Congestion Management

In conjunction with the 2020 Regional Transportation Plan (RTP), an updated Congestion Management Program (CMP) was developed for the Cape Cod Region as described in brief below and detailed in Appendix G. The CMP network focuses on the two main route in the Cape Cod Region; Route 6 and Route 28. Route 6 and Route 28 provide access to all 15 towns within the region. Both corridors experience regular congestion with known crash history year-round, but also account for the corridors with the greatest potential to provide increased multi-modal options within the region.

Modeled after FHWA guidance, the Cape Cod CMP includes the following eight action items:

- Develop Regional Objectives
- Define CMP Network
- Develop Multimodal Performance Measures
- Collect Data/Monitor System Performance

- Analyze Congestion Problems and Needs
- Identify and Assess Strategies
- Program and Implement Strategies
- Evaluate Strategy Effectiveness [24]

The Cape Cod CMP has focused on the following three (3) goals and objectives:

Goal 1: Improve Safety

Objective: Reduce crashes on Route 28 and Route 6 for all modes of travel.

Goal 2: Increase Multi-modal Accommodations

Objective*:* Increase multi-modal options for non-motorists along Route 28 and Route 6 to reduce single occupancy vehicles and reduce congestion.

Goals 3: Reduce Congestion

Objective: Aim to reduce congestion at specific bottleneck intersections on Route 28 and Route 6 on Cape Cod.

The CMP will be monitored with the following multi-modal performance measures:

- Traffic volumes
- Volume to capacity ratios
- Vehicle occupancy
- Number of crashes (all modes)
- Transit ridership
- Park-and-Ride lot usage
- Walkability Rating
- Transportation Demand Management

Data collection efforts will focus on the CMP performance measures and will be summarized to assist in identification and assessment of potential strategies to meet the goals of the CMP. Potential strategies to reduce congestion within the Cape Cod region range from:

- Management and expansion of park-and-ride lots

[24] Congestion Management Process: A Guidebook. Federal Highway Administration. April 2011. Report No. FHWA_HEP_11_011.

- Implement MassDOT Canal Area Study recommendations
- Geometric improvements for certain bottleneck intersections
- Bicycle and pedestrian improvements
- Optimization of signal timings
- Increased transit service (including rail and inter-city bus)
- Leverage transit technology
- Access Management

Stormwater Management

Stormwater runoff is caused by precipitation from rain and snowmelt events which flows over land or impervious surfaces and is unable to percolate into the ground. In natural systems, precipitation may be directly infiltrated into the subsurface, stored in natural depressions, or reintroduced to the atmosphere through evapotranspiration. However, development such as buildings, roads, sidewalks, and paved driveways increases impervious surface area and alters natural hydrology. The increase in impervious cover that accompanies development results in two main issues related to stormwater: 1) greater volume and peak flows of runoff and 2) transportation of contaminants into water bodies.

WATER QUANTITY

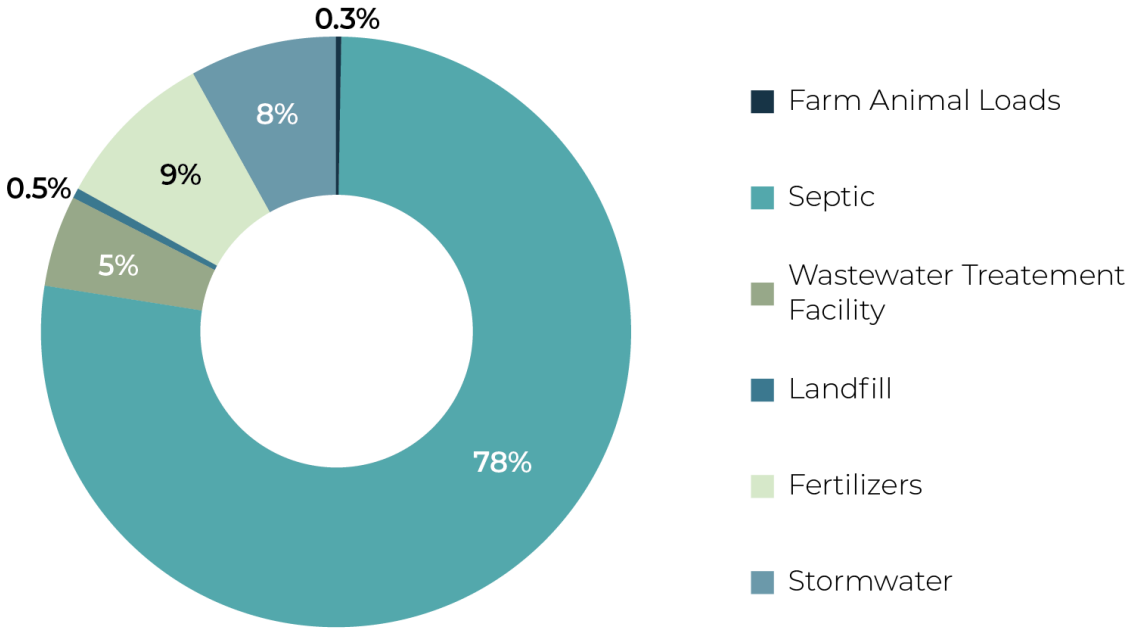
What makes Cape Cod a unique area for stormwater management is the combination of highly porous native soils left by the retreating glaciers and shallow groundwater levels, which are especially prevalent in coastal communities. Well-drained soils readily infiltrate runoff, providing excellent volume reduction of stormwater. A consequence of this rapid infiltration is that minimal natural reduction of nutrients and pollutants is provided, which in combination with the high water table can result in negative impacts to groundwater quality.

WATER QUALITY

Where most efforts to manage stormwater focus on moving the volume of water off roadways, stormwater management on Cape Cod also requires addressing the quality of stormwater that infiltrates to the Cape's groundwater (drinking water) resources and the Cape's coastal estuaries.

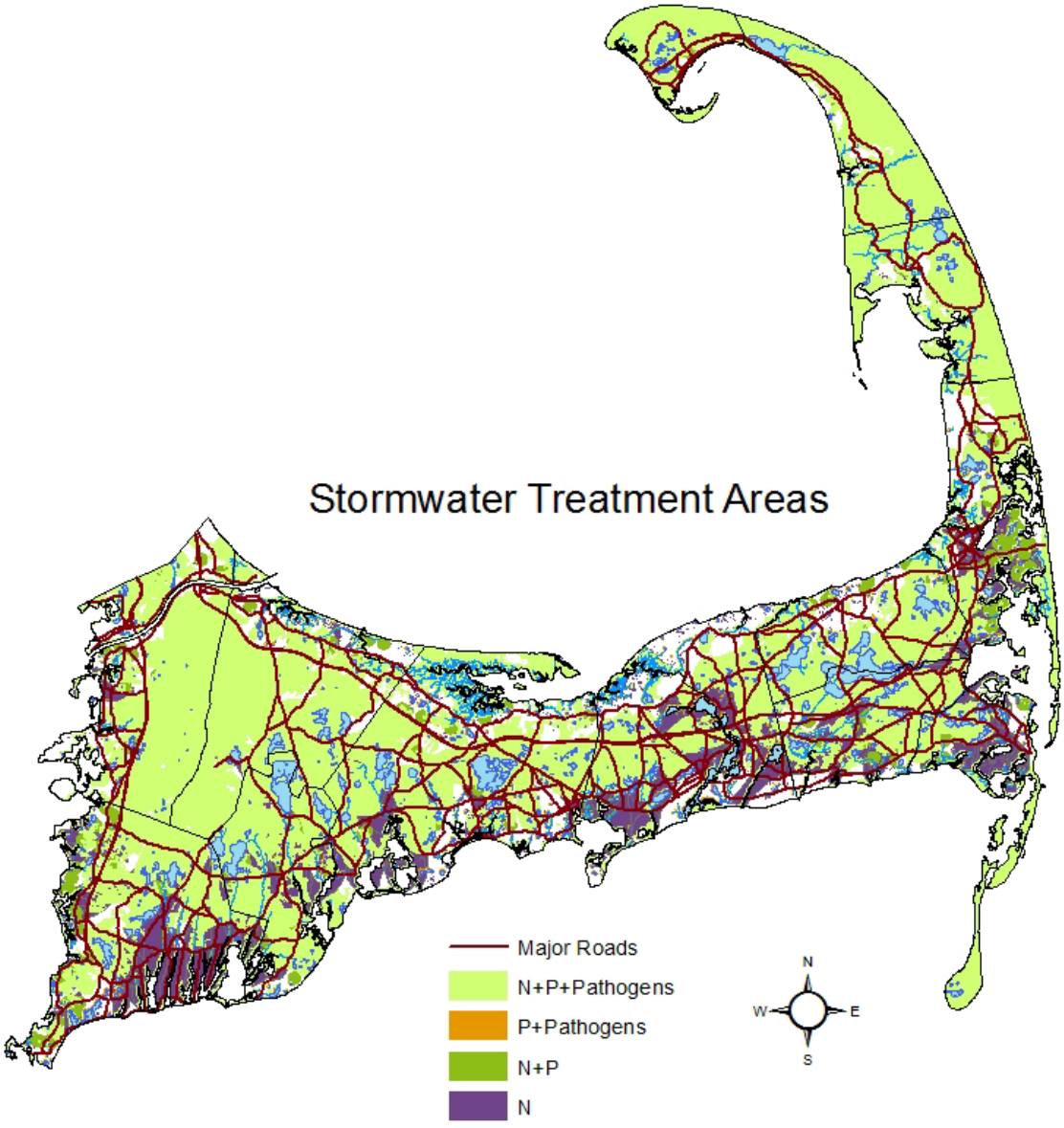
Of particular concern to the coastal estuaries is the introduction of additional nitrogen, a nutrient that through eutrophication can lead to hypoxia, fish kills, loss of eel grass, and aesthetically unpleasant conditions. While the largest share of nitrogen entering the Cape's embayments comes from septic systems, as shown in Figure 28. eight percent of the controllable nitrogen entering embayments Cape-wide comes from stormwater runoff. Stormwater's nitrogen contribution is significant, and in certain individual watersheds the stormwater contribution may be significantly larger than the Cape-wide average.

FIGURE 28. Controllable Nitrogen by Percentage



While nitrogen is the primary stormwater component of concern in marine waters, phosphorous is a similar concern for Cape Cod's freshwater resources, while bacteria and pathogens impact fresh and marine resources alike. Figure 29. presents several sensitive resource areas and pollutants of concern associated with them. These sensitive areas are detailed in Appendix I, and include (among others) pond buffers, river buffers, wetlands area, and watersheds requiring nitrogen removal to meet water quality standards.

FIGURE 29. Stormwater Sensitive Areas



LOW-IMPACT DEVELOPMENT AND STORMWATER BEST MANAGEMENT PRACTICES

Low-impact Development (LID) is a comprehensive, conservation-based approach to stormwater management systems. A LID approach is appropriate both at the site level as well as in roadway design. Environmentally sensitive roadway design involves incorporating LID techniques to prevent the generation of stormwater and non-point source pollution by reducing impervious surfaces,

disconnecting flow paths, treating stormwater at its source, maximizing open space, minimizing disturbance, protecting natural features and processes, and/or enhancing wildlife habitat.

Best management practices (BMPs) are control measures to limit untreated, polluted stormwater runoff from reaching waterbodies. BMPs can be categorized in to two categories: structural and non-structural BMPs.

Non-structural BMPs include street sweeping, environmentally conscious road salting procedures, maintenance of stormwater utilities, and education and public outreach programs.

Structural BMPs that have potential applicability on the Cape's roadways include

- Porous pavement (other)
- Leaching Catch Basins (infiltration)/ Infiltration Basins (infiltration)
- Sub-surface Sediment Chambers (pretreatment + infiltration)
- Retention Pond (treatment)
- Bioretention (treatment)
- Advanced Bioretention (treatment)
- Water Quality Swales (conveyance, treatment, infiltration)
- Constructed Stormwater Wetlands (treatment)

BMP costs, removal efficiencies, and maintenance notes are presented in Appendix I.

FIGURE 30. Bioswale/Rain-Garden in Bridgewater, CT



A comprehensive approach to stormwater management and treatment both at the site level and on the Cape's roadway network is essential to the long-term viability of the region's natural environment. Stormwater infrastructure management is an important long-term investment for maintaining the region's roadway safety and the quality of its water resources. When integrated into

larger planning and design efforts, it can fit seamlessly into the local character of the region, help meet stormwater permit requirements, and take advantage of cost savings. The bio-swale, shown in Figure 30. with long-maintenance ornamental grasses, provides an added green element to the streetscape. [25]

Pavement Management

Pavement Management is the practice of planning for pavement repairs and maintenance with the goal of maximizing the value and life of a pavement network. There are distinct advantages to managing pavement condition and significant cost savings that can take place with preventative or rehabilitation measures rather than waiting until a road is in need of reconstruction (see Figure 31).

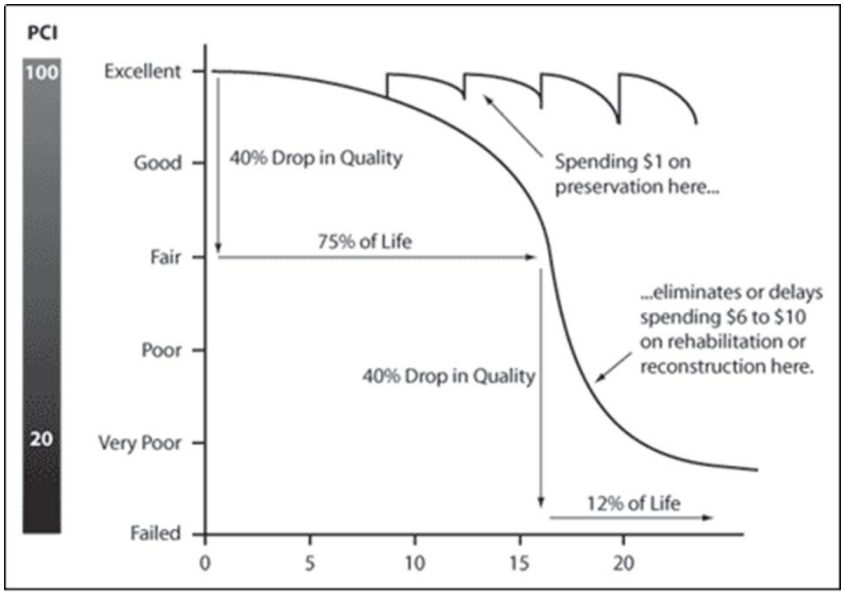


FIGURE 31. Pavement Deterioration Curve (FHWA)

The pavement condition of roadways under the jurisdiction of MassDOT is monitored by MassDOT. The pavement condition on municipally owned roadways is monitored by each town following varying methodologies. Most use commercial pavement management systems while others rely on local knowledge.

To supplement any data collected by MassDOT on roads under their jurisdiction and the data collected locally, Cape Cod Commission staff conducts regional pavement analysis on the federal-aid eligible municipal road network. Covering one-third of the road mileage each year, a three-year cycle provides an overall view of the pavement condition federal-aid eligible municipal roadways on Cape Cod. Evaluation criteria procedure and evaluation criteria are presented in Appendix J.

[25] Source: Bridgewater, CT

TABLE 14. Pavement Condition on Federal-aid Eligible Municipal Roadways

TOWN	VERY GOOD TO EXCELLENT	GOOD TO VERY GOOD	FAIR TO GOOD	POOR TO FAIR	POOR	TOTALS
Barnstable	9.2	51.8	40.7	8.8	1.0	111.6
Bourne	0.4	8.6	23.6	8.4	0.4	41.3
Brewster	4.2	5.9	11.0	4.6	0.8	26.5
Chatham	0.4	3.4	5.7	3.2	0.0	12.7
Dennis	3.7	29.8	9.6	2.2	0.0	45.3
Eastham	1.5	3.0	4.4	7.9	0.0	16.8
Falmouth	7.2	17.0	39.9	19.4	0.4	83.9
Harwich	1.3	19.8	13.3	8.6	0.2	43.1
Mashpee	0.0	4.2	19.0	4.7	1.7	29.5
Orleans	1.6	8.9	5.6	0.3	0.6	16.9
Provincetown	1.5	0.9	10.9	0.0	0.0	13.3
Sandwich	2.7	12.6	15.1	4.3	3.2	37.9
Truro	0.0	0.0	8.4	4.0	0.0	12.4
Wellfleet	0.5	10.4	7.0	1.5	0.0	19.5
Yarmouth	2.7	21.7	27.1	0.6	0.0	52.0
Totals	**36.8**	**198.0**	**241.2**	**78.5**	**8.3**	**562.8**

Access to Essential Services and Regional Cooperation

Safe and convenient access to essential housing, employment, healthcare, education, recreation and transportation services or facilities on Cape Cod are critical to the region's residents and visitors. The location and access opportunities and challenges to these services or facilities are detailed in Appendix K.

In order to improve access to and between these essential services the following will be addressed through various efforts outlined in this plan:

- Reduce congestion for all modes,
- Improve travel time reliability for all modes,

- Improve safety for all modes,
- Increase connections opportunities between different modes,
- Close gaps in the bicycle and pedestrian network, and
- Improve transit options.

As detailed in the discussion of RTP development in Chapter 1, this and other planning efforts include or consideration of a wide range of federal, state, and local agencies and organizations. As detailed in Appendix K, the partnerships within and beyond the region are critical to ensuring that the region maintains a comprehensive and inclusive approach to transportation planning.

FUTURE – REGIONAL TRENDS AND A VISION FOR 2040

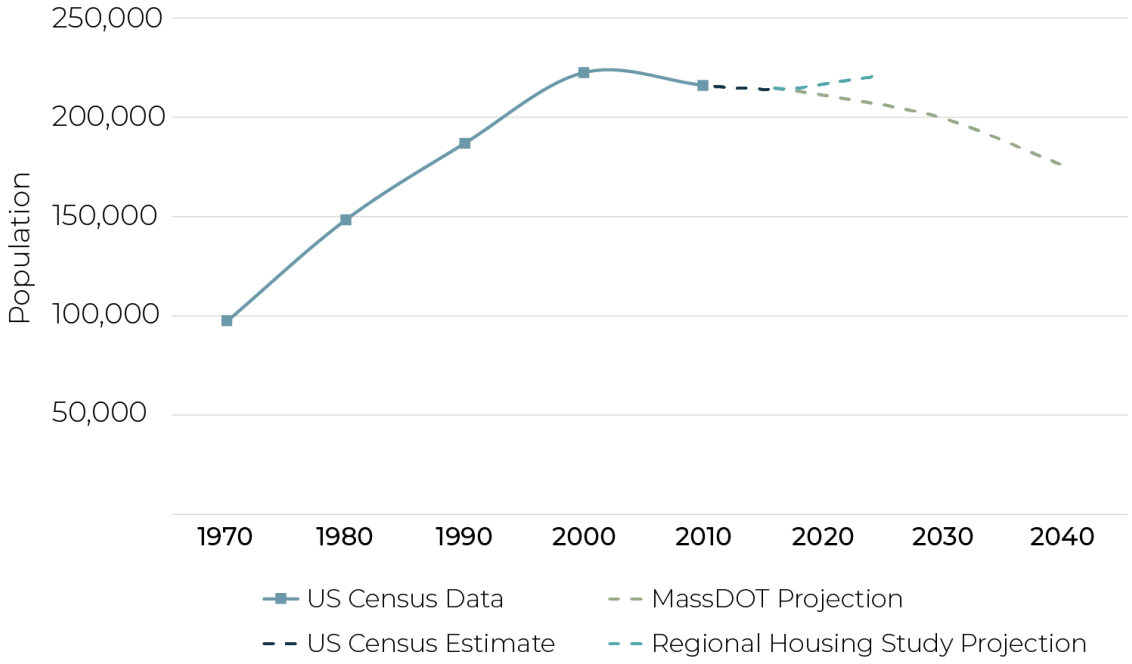
Regional Trends

Reviewing historic regional demographic trends, the future for Cape Cod is in many ways uncertain. While the regional experienced decades of growth through the 20th century, the population saw a slight decline between 2000 and 2010. As a result, projecting the Cape Cod population out to 2040 is a challenging task.

To assist the MPOs in preparing their RTPs, MassDOT provided population projections for each region. The MassDOT projections are largely based on the forecast work of the UMass Donahue Institute with adjustments made by the MassDOT Office of Transportation Planning. In reviewing the MassDOT population projections, Cape Cod MPO staff raised concerns that these projections do not effectively capture the factors that make Cape Cod's population patterns distinct from the many year-round working communities in Massachusetts. As a retirement destination, the Cape's population and economy is far more impacted by migration than by natural growth; we do not feel that the Mass DOT projections effectively account for future migration and retirement patterns and thus underestimates population and employment growth on Cape Cod going forward. To reflect these concerns and the uncertainty of population projections out to 2040, Figure 32. shows both the MassDOT projection as well as a projection developed as part of the Cape Cod Commission's Regional Housing Market Analysis and 10-year Forecast of Housing Supply and Demand by Crane Associates, Inc dated June 30, 2017 (available at www.capecodcommission.org/housing). The regional population projections developed for the Regional Housing Market Analysis take into account regional economic factors as well as local experience and are based on a longer period of historic data.

Regardless of how the region changes over the next 25 years, the Cape Cod MPO is committed to supporting a transportation system that best serves the residents and visitors to the region.

FIGURE 32. Cape Cod Population Trends and Projections



Cape Cod Canal Transportation Studies

The Bourne and Sagamore Bridges provide the only vehicle crossings of the Cape Cod Canal for motorists, pedestrians, bicyclists, and goods. The bridges have served as a vital economic link to Cape Cod since they were first opened to traffic in 1935. The United States Army Corps of Engineers (US Army Corps) owns and maintains the Cape Cod Canal, areas surrounding the canal, and the Bourne, Sagamore, and Railroad Bridges. The Massachusetts Department of Massachusetts (MassDOT) owns and maintains most of the roadway infrastructure approaching the Bourne and Sagamore Bridges. At the time of adoption of this plan, the US Army Corps and MassDOT are in the process of parallel, coordinated studies that will affect the future of infrastructure in the Cape Cod Canal area.

MAJOR REHABILITATION EVALUATION STUDY – CAPE COD CANAL BRIDGES (US ARMY CORPS)

The U.S. Army Corps of Engineers, New England District is conducting a multiyear Major Rehabilitation Evaluation (MRE) Study of the Bourne and Sagamore Highway Bridges. The purpose of the study is to determine whether major rehabilitation or replacement of either or both bridges will provide the most reliable, fiscally responsible solution for the future. The study will result in a Major Rehabilitation Evaluation Report (MRER), which evaluates the risk and reliability of the structures as well as the economic impacts/benefits of a number of alternatives, including continuation of routine maintenance, major rehabilitation, or bridge replacement.

The U.S. Army Corps of Engineers (USACE), New England District, is conducting a multi-year Major Rehabilitation Evaluation Study of the Bourne and Sagamore highway bridges spanning the Cape Cod Canal to evaluate the current conditions of the bridges and what alternatives are feasible for the future.

The existing bridges were constructed more than 83 years ago and require frequent maintenance, which is costly and causes significant impacts to traffic crossing the Cape Cod Canal. The Study will result in a Major Rehabilitation Evaluation Report (MRER) and determine whether standard operation and maintenance, major rehabilitation, or replacement of both bridges will provide the most reliable, fiscally responsible solution for the future. The MRER will provide the basis of decision-making for USACE and Congress on the most cost-effective, safe alternative for critical public transportation access across Cape Cod Canal for the next several decades.

As part of the MRER, the USACE will develop an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) to examine the potential effects associated with the alternatives examined within the MRER and allow for public involvement in the evaluation process.

The MRER will compare the without project condition to all other alternatives. The “without project" condition refers to a baseline of continued regular inspections and standard maintenance construction on the bridges.

The MRER is the basis for USACE and Congressional decision-making between completing major rehabilitation or construction of new structures. While the MRER encompasses all necessary permitting of the selected plan, it will not result in a full design and construction. Additional efforts will be undertaken at the conclusion of the MRER to derive any additional Congressional authorization necessary leading to a full design.[26]

CAPE COD CANAL TRANSPORTATION STUDY (MASSDOT)

The Massachusetts Department of Transportation (MassDOT) commissioned the Cape Cod Canal Transportation Study (“the Study”) to gain a comprehensive understanding of multimodal travel within the Cape Cod Canal area — both the conditions that exist today and the forecast conditions for the future. The study identifies a series of multimodal transportation improvements that reflect the study findings and public feedback gathered as part of the study.

The study’s goals and objectives were developed by MassDOT in cooperation with the study Working Group; all recommended transportation improvements will advance the study’s goals and objectives.

[26] Study description as presented in the December 2018 “Project Overview Fact Sheet” prepared by the US Army Corps. Additional information available at: www.capecodcanalbridgesstudy.com

Goal: Improve transportation mobility and accessibility in the Cape Cod Canal area and provide reliable year-round connectivity over the Canal and between the Sagamore and Bourne Bridges.

Objectives:

- Improve multimodal connectivity and mobility across the Canal to avoid degrading quality of life on the Cape.
- Ensure that cross-canal connectivity does not become a barrier to reliable intra community travel within Bourne and Sandwich.
- Create reliable multimodal connections across the Canal to ensure public safety in the event of an emergency evacuation of portions of the Cape and accommodate first responders trying to reach the Cape.

As guided by the study's Public Involvement Plan, the community played a key role in shaping the study framework and providing detailed and comprehensive comments to build agreement and support for the study recommendations. Four public meetings and 11 Working Group meetings shaped the framework of the entire study.

The Working Group is made up of representatives from:

- Municipal departments and locally elected officials
- State agencies & elected officials
- Federal agencies
- Metropolitan planning organizations
- Chambers of commerce
- Key businesses
- Other interested parties

The study, and ultimately the report, follows a five-step process and framework:

- Step 1: Define the Study Goals, Objectives, and Evaluation Criteria
- Step 2: Review & Evaluate Existing and Future Conditions
- Step 3: Develop a Range of Design Alternatives
- Step 4: Analyze Design Alternatives Based on Evaluation Criteria
- Step 5: Provide Recommendations[27]

[27] Study description as presented in the Summer 2019 DRAFT MassDOT Cape Cod Canal Transportation Study prepared by Stantec.

Detailed discussion of the of each of these steps are presented in the Summer 2019 DRAFT MassDOT Cape Cod Canal Transportation Study prepared by Stantec. Recommendation in that draft report included improvements categorized as multimodal improvements, local intersection roadway improvements, and gateway intersection improvements (referred to as Case 3A). These recommendations are summarized in the following figure.

FIGURE 33. MassDOT Canal Study Recommended Transportation Improvements[28]

TRANSPORTATION MODE	RECOMMENDED IMPROVEMENT	LOCATION	MAJOR STAKEHOLDERS	COST ($ MILLION)
MULTIMODAL				2017 COST
New bicycle/pedestrian connections to Canal bike trail		Various locations in Bourne	Town of Bourne / MassDOT / USACE	$25K - $50K per location
Bicycle/Pedestrian Facility Improvements		Sagamore Bridge Approaches / Adams Street	MassDOT / USACE	3.9
Bicycle/Pedestrian Facility Improvements		Bourne Bridge Approach (north)	MassDOT / USACE	0.8
Bicycle/Pedestrian accommodation along bus routes: add sidewalks /crosswalks / roadway shoulder /bike racks / bus shelters		Various locations along bus routes in Bourne & Sandwich	Towns of Bourne and Sandwich / MassDOT	Varies by location
Park and Ride Lot		Route 6 Exit 2 (Route 130)	MassDOT	2.8
LOCAL INTERSECTION ROADWAY IMPROVEMENTS				2017 COST
Route 6 at Cranberry Highway		Bourne	Town of Bourne / MassDOT	0.6
Route 130 at Cotuit Road		Sandwich	Town of Sandwich / MassDOT	1.0
Sandwich Road at Bourne Rotary Connector		Bourne	Town of Bourne / MassDOT	1.9
GATEWAY INTERSECTION ROADWAY IMPROVEMENTS (CASE 3A IMPROVEMENTS[1])				2030 COST
Scenic Highway to Route 25 Westbound Ramp			Town of Bourne / MassDOT	11
Belmont Circle Reconstruction			Town of Bourne / MassDOT	23
Bourne Rotary Interchange[2]			Town of Bourne / MassDOT	87
Route 6 Exit 1C Relocation			Town of Bourne / MassDOT	51
Additional Travel Lane on Route 6 Eastbound to Exit 2			Towns of Bourne and Sandwich / MassDOT	48
Sagamore Bridge Approaches[3]			Town of Bourne / MassDOT / USACE	64
Bourne Bridge Approaches[3]			Town of Bourne / MassDOT / USACE	84

1 Case 3A assumes the prior replacement of the Sagamore and Bourne Bridge by the USACE.
2 Includes cost of Bourne Rotary Reconstruction (Alternative 2, Three Signalized Intersections).
3 Includes approach roadway and bridge relocation and retaining walls.

The multimodal and local intersection improvements have independent utility and can move forward at any time. The gateway intersection projects, listed in the figure above and show in the

[28] As presented in the Summer 2019 DRAFT MassDOT Cape Cod Canal Transportation Study prepared by Stantec.

graphic on the following page, could move forward as a single project or in phases. A potential phasing scenario is presented in the draft report. The gateway intersection projects assume the prior replacement of the Sagamore and Bourne Bridges by the US Army Corps. The draft report notes a commitment of MassDOT to work closely with the US Army Corps on future project development concerning the Bourne and Sagamore Bridges and their approaches.

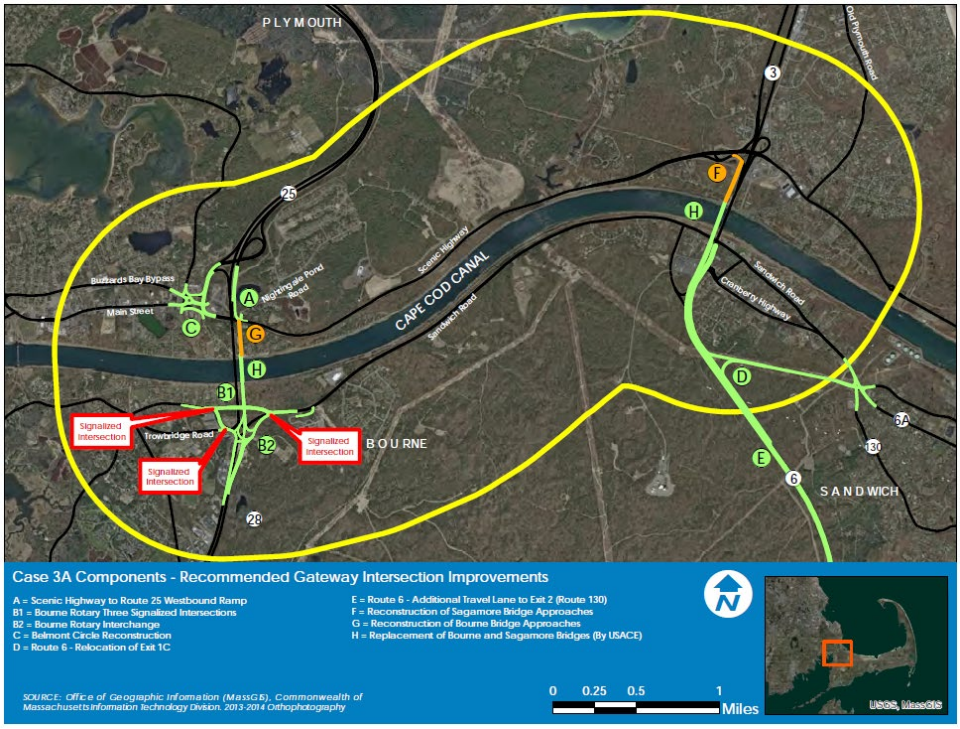


FIGURE 34. MassDOT Canal Study Gateway Intersection Improvement Overview[29]

The Cape Cod MPO is encouraged by the continued dialog at the federal, state, regional, and local levels regarding Cape Cod Canal infrastructure and looks forward to implementation of solutions, including all modes of transportation, that meets the needs of the regional and the travelling public. Continued dialogue and coordination between the with the US Army Corps, MassDOT, towns potentially impacted by the project, and the entire region should occur as the projects move forward into the design phase. With the majority of potential infrastructure changes and potential direct impacts occurring within the Town of Bourne, particular attention should be paid to ensuring that the Town is well-presented throughout the design and decision-making process.

[29] As presented in the Summer 2019 DRAFT MassDOT Cape Cod Canal Transportation Study prepared by Stantec.

A Vision for 2040

Cape Cod's transportation system has both shaped and been shaped by development patterns of the region. As our regional economy has evolved so too has our transportation infrastructure. From a reliance on ports and marine transport, to a steady growth by rail, and explosion of change fueled by the automobile – our region has undergone dramatic changes. All the while, our connection with our environment and our past has continued to define us. What will define our region for the next 20 years?

As a region, Cape Cod we face a number of challenges that will have to be addressed over the coming decades. The region faces limited vacant land, a lack of housing affordability, potential loss of habitat as a result of development pressure, impaired watershed from excess nitrogen loading, tourism dependence with a lack of year-round jobs paying a living wage, automobile dependence, and the impacts of climate change. In different ways, smart transportation investment decisions can help to address these challenges facing the region.

While many uncertainties exist about the future, strength of the transportation infrastructure will undoubtedly be a key to our long-term vitality. As a region, we must establish a vision for our region's transportation system and identify our priorities for investing financing resources in maintaining and improving this system. The 2020 Regional Transportation Plan (RTP) sets forth this vision for the region and sets the framework for making smart transportation investments within the region through 2040.

Chapter 4: Livability, Climate Change Resiliency, and Scenario Planning

Livability, climate change resiliency, and scenario planning are important planning concepts that are incorporated through the region's transportation planning process and directly into the Regional Transportation Plan (RTP).

LIVABILITY

Livability is about tying the quality and location of transportation facilities to broader opportunities such as access to good jobs, affordable housing, quality schools, and safer streets and roads. Livability can be supported through funding transportation related projects and sponsoring activities like Context Sensitive Solutions and public involvement that help enable people to live closer to jobs, save households time and money, and reduce pollution. This principle reinforces the growth policy in the updated RPP, which promotes guiding new development and redevelopment into existing centers of activity. Focusing development in areas of existing centers of activity can provide more opportunities for people to live closer to jobs, friends and family, and activities, and can allow for more efficient use of resources and infrastructure.

As part of the United States Department of Transportation's (USDOT) Livability Initiative, the Federal Highway Administration (FHWA) works within the Interagency Partnership for Sustainable Communities to coordinate and leverage federal housing, transportation, water, and other infrastructure policies and investments. The Partnership for Sustainable Communities developed the following principles to guide efforts:

1. Provide more transportation choices
2. Promote equitable, affordable housing
3. Enhance economic competitiveness
4. Support existing communities
5. Coordinate policies and leverage investment
6. Value communities and neighborhoods[30]

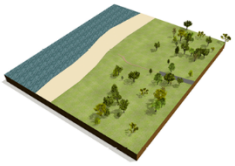
[30] http://www.fhwa.dot.gov/livability/

Livability directly benefits people who live on, work on or visit Cape Cod, increases property values and business activity, and it can improve public health and safety. Transportation decisions can have a major impact on livability and the region's character.

The character of Cape Cod is a critical component of the communities and livability of the region. Many different and unique places with varying character exist across the region. The 2018 Regional Policy Plan identifies eight Cape Cod Placetypes—areas with similar natural and built characteristics—that illustrate the different character areas and contexts found throughout the region: Natural Areas, Rural Development Areas, Suburban Development Areas, Historic Areas, Maritime Areas, Community Activity Centers, Industrial Activity Centers, and Maritime and Transportation Areas. Each Placetype has its own vision, as well as a description of its defining characteristics and development patterns. To ensure that transportation projects protect the existing character of the region and foster greater livability, the context of a project must be considered and integrated into the design of the project. The Cape Cod Placetypes provide a framework for such context-sensitive design. The Cape Cod Placetypes are illustrated in Figure 35.

Transportation projects within and connecting Community Activity Centers will be key to improving the livability of the region. Because Community Activity Centers already have a concentration of commercial and community activity and compact form, there exists an opportunity for people to live, work, and play in a smaller area. Streetscapes within and connecting Community Activity Centers need to be attractive, safe, and suitable for a variety of transportation modes (particularly walking). Further developing these centers of activity and their transportation networks can create opportunities for people to meet and interact, helping to create community networks, reduce traffic and the amount of resources needed for transportation infrastructure, improve public health by promoting pedestrian activity and reducing pollution, all of which are components of livability. Additionally, integrating context-sensitive design into the transportation project process will help preserve environmental and historical assets, which are critical components of the region's character, economy, and livability. Context-sensitive design and Community Activity Centers are central to the Livability and Sustainability goal and associated objectives and performance measures discussed in Chapter 2.

FIGURE 35. Cape Cod Placetypes



NATURAL AREAS

Natural Areas are generally the region's least developed and most sensitive areas.



RURAL DEVELOPMENT AREAS

Rural Development Areas are defined by a high percentage of open lands and sparse building development patterns that contribute to the unique rural and scenic character of the region.



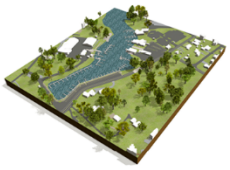
SUBURBAN DEVELOPMENT AREAS

Suburban Development Areas include residential neighborhoods built primarily between the 1950s and 1990s as well as automobile-oriented commercial and light industrial development established during the same time period.



HISTORIC AREAS

Historic Areas consist of concentrations of historic structures, including local and/or National Register districts located in a small-scale village setting.



MARITIME AREAS

Maritime Areas are clusters of commercial and mixed-use development that contribute to Cape Cod's working waterfronts and harbors.



COMMUNITY ACTIVITY CENTERS

Community Activity Centers are areas with a concentration of business activity, community activity, and a compact built environment. Buildings are generally smaller in scale and connected by a network of streets, ways or alleys.



INDUSTRIAL ACTIVITY CENTERS

Industrial Activity Centers are lands containing industrial uses that are suitable for future industrial activity as well as emerging industries.



MILITARY AND TRANSPORTATION AREAS

Military and Transportation Areas consist of large land areas developed with and devoted to infrastructure such as airports, transfer stations, waste disposal facilities, and Joint Base Cape Cod.

CLIMATE CHANGE RESILIENCY

The Cape Cod Metropolitan Planning Organization's (MPO) approach to climate change is based on FHWA's policies on climate change, defined by a vision for improved coastal resiliency, and includes the following initiatives:

- **Adaptation** - Preparing for the impacts of global climate change on the nation's transportation infrastructure and systems;
- **Sustainability** - Ensuring that balanced choices are made among environmental, economic, and social values that will benefit current and future road users;
- **Mitigation** - Identifying strategies that reduce greenhouse gas (GHG) emissions from transportation sources.
- **Energy** - Promoting the use of alternative and renewable fuels, and vehicle technologies to reduce oil dependence, vehicle pollution and energy use.[31]

Impacts and Vulnerabilities[32]

Scientists have concluded that some level of climate change has already occurred, weather patterns are changing, and these changes are expected to continue or accelerate in the future[33]. Additionally, past weather and climate patterns appear to be much less reliable indicators of future weather and climate than in recent decades, which necessitates greater flexibility in planning and decision-making processes. As stated in the USDOT Policy Statement on Climate Adaptation, DOT shall integrate consideration of climate impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services, and operations remain effective in current and future climate conditions.

The DOT recognizes that climate variability and change pose potential threats to U.S. transportation systems and Cape Cod is no exception. The range of impacts from these threats may include roadway deterioration, flooding, limited waterway access, and weakened structures. Severe conditions may reduce the life of capital assets and increase operational disruptions. Some consequences may require changes in the design, construction, and maintenance of infrastructure.

Building resilience to, and mitigating, climate change and weather-related risk is common sense management to protect current and future investments and to maintain safe operational

[31] http://www.fhwa.dot.gov/environment/climate_change/

[32] Excerpt from U.S. DOT Climate Adaptation Plan: Ensuring Transportation Infrastructure and System Resilience

[33] See USGCRP, Global Climate Change impacts in the United States, particularly pp.27-40. http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/full-report

capabilities. Mitigating and adapting to climate change and its impacts can include adjusting how transportation infrastructure is planned, designed, built and operated. Making climate change mitigation and adaptation a standard part of agency planning can ensure that resources are invested wisely, and that services and operations remain effective.

Climate Change Mitigation and Adaptation

Climate change mitigation and adaptation involves adjusting the way the transportation community plans, designs, constructs, operates, and maintains transportation infrastructure to reduce greenhouse gas emissions and protect against the impacts caused by changes in climate and extreme weather events.

While actions taken to mitigate climate change may not be able to fully stop climate change, they can help the effort to slow the rate of change and provide more time for the region to adapt to a changing climate and its impacts. Climate change mitigation strategies related to transportation focus around reducing greenhouse gas emissions through actions including trip reduction, electrification of vehicles, improved and expanded transit systems, and improved and expanded bicycle and pedestrian networks to reduce the amount of vehicle trips in an area.

Adaptation strategies for coping with extreme events and future climate change are most likely forms of coastal engineering and planning already utilized today[34]. However, the challenges facing today's engineers and planners may be among the greatest ever because of the on-going migration of people to coastal areas and the projected rise of sea level to elevations unprecedented in modern times. Adaptation strategies to respond to coastal infrastructure problems related to natural hazards and climate change may be categorized as follows:

- Maintain existing infrastructure for optimal performance and manage the response to extreme events through advanced preparation.
- Increase redundancy of the transportation system by ensuring that services provided by infrastructure can be supplied by other means or alternatives.
- Protect the existing system by providing physical barriers to climate stressors and extreme events.
- Accommodate by modifying or redesigning infrastructure to better coexist in a climate-stressed environment.
- Relocate infrastructure away from the coast to lessen or eliminate exposure to climate stressors.

[34] Highways in the Coastal Environment: Assessing Extreme Events, US Department of Transportation and Federal Highway Administration Publication No. FWHA-NHI-14-006, October 2014

Climate Change Mitigation and Adaptation on Cape Cod

Barnstable County is a unique community almost completely surrounded by water with over 500 miles of vulnerable coastline. All 15 towns in Barnstable County have access to the coast, making the Cape a popular place to live, but the coastline also makes Cape Cod particularly vulnerable to the impacts of climate change. These impacts may include degradation of air quality, strain on local indigenous flora and fauna, changes in sea surface temperature, potential saltwater intrusion threats, and flooding, which can result in property, economic, and environmental damage and loss. Flooding from storm and non-storm surges is expected to increase due to projected sea level rise and more intense storms.

Rising waters and inundation from flooding events, storm surge, and sea level rise are concerns for the region's transportation network because many valuable transportation assets exist close to the water's edge. Thus, it is important to understand and actively engage in long-range planning activities to ensure that the transportation system in Barnstable County will both mitigate climate change and be resilient to its impacts.

An important initial step in preparing transportation infrastructure on Cape Cod for climate change is to identify which transportation assets are vulnerable to climate stressors. Current Cape Cod Commission efforts identify transportation assets throughout the region vulnerable to climate change impacts. The Commission has worked with several towns throughout the region to develop Multi-Hazard Mitigation Plans. Development of these plans includes a vulnerability assessment of critical infrastructure and assets within the town, as well as specific actions to reduce the vulnerability of critical infrastructure and improve its resilience. For example, a town may include widening a culvert to prevent flooding of a key roadway as an action to improve resiliency. Currently, the Commission is also working with several towns to carry out the Municipal Vulnerability Preparedness Program. This program involves an intensive stakeholder process to identify vulnerabilities, and strengths, in the community and actions to mitigate or adapt these features to increase their resiliency to priority hazards such as flooding and sea level rise. The Commission also created an online Sea Level Rise Viewer that highlights impacted roadways, and other past work on vulnerability assessments. These efforts supplement past vulnerability assessments carried out using the FHWA Climate Change & Extreme Weather Assessment Framework and past work with the John A. Volpe National Transportation Systems Center.

Restoring River and Stream Continuity

Long before the construction of roads, rail lines, and bike paths, the Cape's waterways flowed freely. As the first line of defense, these waterways could absorb the impact of many of the natural events that faced the region. Bridge, culverts, and other tidal restrictions can inhibit the natural flows and become vulnerable points in storm events. By restoring river and stream crossing the region can see coastal resiliency as well as environmental benefits.

TIDAL STREAM CROSSINGS

Culverts and bridges that are too small to pass the full tidal range are known as tidal restrictions, and their impacts can be severe. By limiting tidal flow, restrictions alter water levels and chemistry, diminish exchange of ocean nutrients, and can degrade entire upstream aquatic systems. When properly designed, replacing a tidally-restrictive crossing with a larger culvert or bridge restores the natural tidal flow needed to sustain healthy tidal wetland habitats.

FRESHWATER STREAM CROSSINGS

Undersized or improperly placed crossings impact natural stream processes and prevent fish and wildlife from moving about the watershed. Stream crossings can disrupt stream continuity and impact freshwater ecosystems in the following ways:

- Undersized crossings restrict water flow, particularly during storms. These crossings may contribute to extensive channel scour, bank erosion, flooding, and crossing failure. Undersized crossings may be too small, and the flow may be too fast, to pass fish or wildlife.
- Shallow crossings have water depths that are too shallow for fish and other aquatic life to migrate through.
- Perched crossings have an outlet that is elevated above the level of the stream bed at the downstream end. Perched crossings block fish and wildlife from moving upstream.

The Massachusetts Division of Ecological Restoration (MassDER)[35] leads the charge for restoring aquatic ecosystems in the Commonwealth and has been an invaluable partner to the region. In providing much of the language for this section, as well as additional analysis presented in Appendix H, MassDER is involved in numerous tidal restoration projects currently ongoing in the region.

Restoring river and stream crossing has a number of economic and community benefits and are important projects for the region. A MassDER study[36] found that each $1.0 million dollars spent on its restoration projects (including stream barrier removals, as well as salt marsh restoration) supported 10 to 13 jobs and $1.5 to $1.8 million in regional economic output (2009 dollars). Such projects are a particular benefit to the region when coupled with roadway improvements projects. Appendix H details a number of ongoing and potential river and stream crossing restoration projects that should be considered by the region either as part of planned transportation improvements or as standalone projects.

[35] More information on the MassDER available at: http://www.mass.gov/eea/agencies/dfg/der/

[36] Massachusetts Division of Ecological Restoration. "The Economic Impacts of Ecological Restoration in Massachusetts." March 201.

Greenhouse Gases Analysis

The transportation system is a critical component of the Commonwealth of Massachusetts' infrastructure; it facilitates economic development, access to goods and services, and social interaction and enrichment. While the system has numerous benefits that users depend upon daily, it also contributes over one-third of the Bay State's greenhouse gas (GHG) emissions, a key cause of climate change. Sprawling development patterns and automobile dependence also contribute to physical inactivity, which is associated with various negative health outcomes, while motor vehicle pollution contaminates the air, causing respiratory and other health conditions.

GLOBAL WARMING SOLUTIONS ACT AND THE ROLE OF METROPOLITAN PLANNING ORGANIZATIONS

The Global Warming Solutions Act (GWSA), which was signed into law in August 2008, makes Massachusetts a leader in setting aggressive and enforceable GHG reduction targets, and implementing policies and initiatives to achieve these targets. In keeping with the law, on December 29, 2010 the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), in consultation with other state agencies and the public, released the Massachusetts Clean Energy and Climate Plan for 2020. In December 2014, DEP issued new regulations that require MPOs to quantify impacts from project investments, track, progress towards reductions, and consider impacts in the prioritization of project investments. The targets for overall statewide GHG emissions are:

- By 2020: 25 percent reduction below statewide 1990 GHG emission levels
- By 2050: 80 percent reduction below statewide 1990 GHG emission levels

The Commonwealth's MPOs are integrally involved in supporting the GHG reductions mandated under the GWSA. The MPOs are most directly involved in helping to achieve the GHG emissions reductions through the promotion of healthy transportation modes through prioritizing and programming an appropriate balance of roadway, transit, bicycle and pedestrian investments – and assisting smart growth development patterns through the creation of a balanced multi-modal transportation system. This is realized through the transportation goals and policies espoused in the 2020 Regional Transportation Plans (RTPs); the major projects planned in those RTPs; and the mix of new transportation projects that are programmed and implemented through the TIPs. GHG tracking and evaluation processes enable the MPOs to identify anticipated GHG impacts of planned and programmed projects, and also to use GHG impacts as a criterion in prioritizing transportation projects.

Additional information air quality conformity can be found in Appendix N.

Alternative and Renewable Energy

There are numerous projects in Barnstable County that are investing public resources to conserve energy, implement efficiency measures, and produce or purchase renewable energy, such as:

- Cape Cod Regional Transit Authority (CCRTA) is currently meeting 94% of the energy needs of its intermodal center and maintenance facility with solar and wind power and is pursuing grant funding to deploy low or no emissions vehicles on some of its routes.
- Energy Star Passenger Terminal at the Barnstable Municipal Airport: The new 35,000 square-foot passenger terminal building at Barnstable Municipal Airport was constructed with multiple energy saving design features including white roofs, high performance windows, high efficiency HVAC systems, point of service water heaters, and fluorescent lighting.
- Solar Collection Field at the Barnstable Municipal Airport: Nearly 25,000 photovoltaic modules were installed across 18.8 acres of airfield. Energy from the solar array will benefit the airport, the Barnstable Fire District and eventually, rate payers in Barnstable and other jurisdictions.
- Electric Car Charging Stations at various locations throughout the county.

The Commission also supports development of appropriate renewable energy resources, as demonstrated by the energy goal and objectives and action items in the updated RPP, which are part of a framework for future planning work and development project regulatory review. The energy goal in the RPP is "to provide an adequate, reliable, and diverse supply of energy to serve the communities and economies of Cape Cod," and is supported by three objectives:

- Support renewable energy development that is context-sensitive
- Increase resiliency of energy generation and delivery
- Minimize energy consumption through planning and design (including energy efficiency and conservation measures)

Additionally, two action items in the updated RPP include conducting GIS analyses to identify potential electric vehicle charging station locations and appropriate potential solar photovoltaic array or energy storage facilities sites to encourage development of on-site renewable energy.

SCENARIO PLANNING

Transportation and land use are inextricably linked and only with a shared vision for both can the ultimate visions of a region be achieved. Scenario planning is one way in which these disciplines can be looked at in a comprehensive way.

FHWA defines scenario planning an analytical tool that can help transportation professionals prepare for what lies ahead. Scenario planning provides a framework for developing a shared vision for the future by analyzing various forces (e.g., health, transportation, economic, environmental, land use, etc.) that affect growth.[37] This framework has been used and continues to be an important tool for the region.

Climate Change Scenario Planning

The Cape Cod Commission has developed two tools to help illustrate both different potential climate change scenarios and ways of mitigating the impacts of climate change: the Sea Level Rise Viewer and the Cape Cod Coastal Planner. The Sea Level Rise viewer is an online tool that allows a user to see what the impacts of sea level rise of one, two, three, four, five, or six feet would be on critical facilities and roadways in the region.[38] This tool shows that with one foot of sea level rise, over 50 miles of roads become disconnected or isolated, limiting emergency and day-to-day access to these locations. With three feet of sea level rise, this number jumps up to almost 160 miles and with six feet of sea level rise, over 700 miles of the region's roadways become disconnected. Being able to look at the impacts of possible future sea level rise and climate change scenarios can help inform future planning efforts so that ways to address these potential access and safety issues are incorporated into future projects. Further analysis using this tool's data shows that at one foot of sea level rise, almost 1,300 residences may be inaccessible, at three feet of sea level, over 6,200 residences are potentially isolated or inaccessible, and this number jumps to over 26,000 with six feet of sea level rise.

While the Sea Level Rise viewer identifies potential vulnerabilities, the Cape Cod Coastal Planner, built by the Cape Cod Commission and its partners, is an interactive map-based communication and decision-support tool to help residents and decision makers understand the relative environmental and socio-economic effects of implementing different adaptation strategies and scenarios to address sea level rise, storm surge, and erosion. The tool integrates research on potential adaptation strategies for Cape Cod communities and how ecosystem services are impacted by hazards and strategy selection. Cape Cod Coastal Planner's development was also informed by an extensive stakeholder process, integrating feedback from potential users across the region, and is being tested through a pilot project with the Town of Barnstable. Using these two tools can help guide future projects and efforts by identifying vulnerable areas and providing ways to test different ways to address those vulnerabilities.

[37] http://www.fhwa.dot.gov/planning/scenario_and_visualization/scenario_planning/

[38] Analysis conducted using 2012 road data

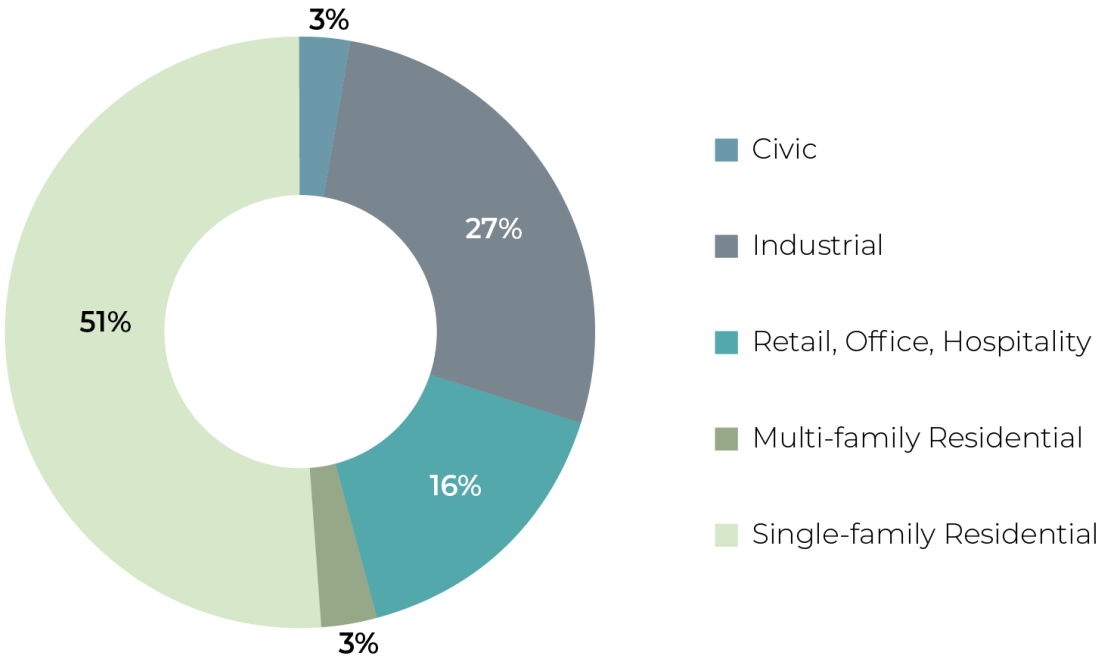
Land Use Scenario Planning

Where the RTP sets the regional vision for transportation, the Regional Policy Plan (RPP) sets the overarching regional vision for how Cape Cod will grow and develop in the future. An updated RPP was adopted in January 2019. As part of the update process, stakeholders engaged in a regional scenario planning exercise conducted using the Envision Tomorrow suite of regional planning tools.[39]

Using this software, users are able to test multiple development scenarios and then compare the impacts of each development scenario. The business as usual, or the "Trend Scenario," answers the question: "What happens if current land use policies remain unchanged?" Based on existing zoning and constraints such as wetlands, the Trend Scenario builds on existing vacant land to see what Cape Cod would look like in 2030.

The Trend Scenario was largely characterized by the development of large single-family homes as shown in Figure 36.

FIGURE 36. RPP Trend Scenario (Land Use Mix – Percent of Total Acres)



The results of these continued development patterns for the regions are characterized by more sprawling development resulting in a loss of habitat, perpetuation of unaffordable housing, and continued wastewater challenges, in addition to climate change challenges. Focusing just on the

[39] http://www.envisiontomorrow.org

transportation impacts, the Trend Scenario results in disperse, auto-dependent development that would result in a significant need for new infrastructure including:

- Over 300 miles of new roadway construction – enough to stretch from the Sagamore Bridge to the Provincetown Monument five times
- Over 80,000 new parking spaces – the equivalent of paving over all of the 700-acre Shawme-Crowell State Forest for parking

The updated RPP articulates a growth policy that promotes guiding new development and redevelopment to existing centers of activity. During the RPP update process, the Envision Tomorrow tool was used to construct an alternate scenario more aligned with the RPP growth policy, which focuses on guiding development and redevelopment to more compact centers of existing activity. The resulting development would be denser with more redevelopment, putting 70% more development in already developed areas, requiring 80% less impervious surface and 13 times less land than the trend scenario, which would result in less habitat loss. In the trend scenario, much of the additional housing developed would be multi-family housing, which would also be more affordable for households earning $50,000-$75,000 per year. In particular, because most of the development would occur in areas already developed, this alternate scenario would utilize existing infrastructure, requiring 90% fewer miles of new roadway than the trend scenario. Additionally, the alternate scenario of more compact and dense development allows for greater walkability as people can live closer to jobs and amenities.

Planning for the Future of the Cape Cod Economy: Comprehensive Economic Development Strategy

In 2009, Cape Cod was designated an Economic Development District creating new regional opportunity for Federal Economic Development funding for projects and programs consistent with the Comprehensive Economic Development Strategy (CEDS) for Cape Cod. This important and valued designation followed an intense stakeholder driven regional planning effort to adopt a CEDS for Cape Cod, an economic blueprint for the region.

The CEDS planning effort on Cape Cod is led by the Barnstable County Economic Development Council and staffed by the Cape Cod Commission. The planning process and plan are informed by a comprehensive analysis of the region's economy, its strengths, opportunities, weaknesses, and threats. The result is an action plan and an evaluation process specifically designed to address priority issues through achievable projects and programs. A number of projects and programs involve investments in transportation infrastructure consistent with the goals and objectives of the RTP.

"Future of Transportation in the Commonwealth" Report

With many changes facing the transportation system in the coming decades, the Cape Cod MPO looks to work with state and federal agencies to understand and plan for these changes. The Commonwealth of Massachusetts in a leader in transportation profession in terms of forward-thinking transportation planning and policy. A recent report, "Future of Transportation in the Commonwealth" Report, covers a number of key topics that are relevant to the Cape Cod region.

In January of 2018 Governor Baker established the Commission on the Future of Transportation to investigate the following topics as they affect transportation during the 2020-2040 time span:

- Climate and Resiliency
- Transportation Electrification
- Autonomous and Connected Vehicles
- Transit and Mobility Services
- Land Use and Demographics.

The Governor's commission identified 18 recommendations for how to best prepare Massachusetts' transportation network for the challenges and opportunities of 2040. A discussion from the Cape Cod MPO perspective is included following each recommendation and is shown in *italics*.

1. PRIORITIZE INVESTMENT IN PUBLIC TRANSIT

The Commonwealth must continue to focus on modernizing its existing public transit assets, including vehicles, to prepare the current system to perform better long before 2040. The public transit agencies of Massachusetts need to reinvent transit operations to offer better, more responsive, and more customer-focused service, in concert with new mobility. *As an MPO partner, the Cape Cod Regional Transit Authority (CCRTA) continues to innovate and expand its services. For example, the CCRTA has been integrating support for bicyclists with transit service and adopting ride sharing services as part of its network*.

2. TRANSFORM ROADWAYS AND TRAVEL CORRIDORS

MassDOT, municipalities, and other roadway owners should redesign them to prioritize person-throughput rather than vehicle-throughput, so that limited corridor capacity is allocated to moving as many people as possible, while accommodating mobility alternatives. *Several communities in Barnstable County have already expressed interest in MassDOT's "Complete Streets" program; the Town of Sandwich has received funding through the program; the Cape Cod Commission has already completed a prioritization plan with one of the Cape's towns (Eastham) and expects to support others in the near future. Applying Complete Street's principles has and will continue to improve state and local roads to accommodate all users. In addition, accommodating transit service can lead to increased use of intercity buses thereby shifting travelers away from personal automobiles.*

3. BETTER MANAGE TRAFFIC CONGESTION

The Commonwealth must consider a full set of options to address roadway congestion, including improvements to public transit, better systems operations, and the consideration of congestion pricing. The Commonwealth should prioritize and target investments in public transit and other high-capacity transportation modes to make these more efficient, attractive, and reliable to reduce single occupancy vehicle (SOV) use, particularly on our most congested roads in the urban core. *The Cape Cod MPO's Regional Transportation Plan has and will continue to support comprehensive strategies to address traffic congestion. Cape Cod is fortunate to have pleasant weather during its busiest season – making bicycling and walking attractive options for shorter trips; additionally, the CCRTA deploys expanded services during the busy season. Intersection operations can be improved through deployment of signal preemption – allowing Opticom-equipped CCRTA buses to improve travel times. The use of Congestion Pricing could be effective both as a traffic management strategy as well has a funding mechanism to support transportation alternatives.*

4. ESTABLISH A COMMONWEALTH TRANSPORTATION TECHNOLOGY TRANSFORMATION INITIATIVE

The Governor's commission believes that we are in the early stages of a transportation revolution as impactful as any that has come before it. In order to harness the talent of our workforce, academia, and innovators to take full advantage of this opportunity, the Commission calls for the establishment of the Commonwealth Transportation Technology Transformation Initiative (T3I) to partner public and private resources with innovators to tackle some of the Commonwealth's most difficult transportation issues. *Cape Cod MPO staff will continue to monitor developments in this area and participate in MassDOT efforts such as training and workshops*.

5. SUPPORT AND ACCELERATE EFFORTS TO CONSUME TRANSPORTATION DIFFERENTLY

MassDOT should lead the development of policies related to changes in mobility practices, including ride-sharing, vehicle-sharing, Mobility as a Service (MaaS), on-demand mobility (ODM), and micro-mobility. The Commonwealth should continue to be an innovation proving ground for shared mobility initiatives. *Cape Cod MPO staff will continue to participate with MassDOT's efforts in this area. One area of emphasis will be to explore deployment of bikeshare, dockless bicycles and/or scooters in some of the Cape's higher-density villages*.

6. PROMOTE A STATEWIDE TELECOMMUNICATIONS INFRASTRUCTURE

The Commonwealth should promote full statewide communications infrastructure (5G, Wi-Fi, and their future counterparts) that can support and enable new transportation technologies and services, from connected and autonomous vehicles (C/AVs), to real-time traffic and asset management systems, to telecommuting opportunities. Since the siting of infrastructure to support new technologies includes municipal approval, MassDOT and other state agencies will need to expedite their review and approval processes while better coordinating them with local communities. *Improving the Cape's wireless communications systems continues to be a priority of the*

Cape Cod Commission and stakeholders such as OpenCape. Cape Cod MPO staff will continue to work with MassDOT and Cape Cod communities to deploy an improved system.

7. DEVELOP A STRATEGY TO SUPPORT CONNECTED AND AUTONOMOUS VEHICLES

MassDOT should dedicate resources to the management of an interagency Connected and Autonomous Vehicle (C/AV) Committee, to understand how the Commonwealth can prepare for and maximize the positive impacts of C/AVs. To continue Massachusetts' leadership position, the Governor should consider proposing legislation to establish statutory and regulatory structures that enable the safe and reliable deployment of C/AVs. *C/AVs can be expected to have a significant impact on mobility and traffic operations. Positive impacts include improved safety and efficiency. It is uncertain what effect C/AVs would have on parking demand since the vehicles could operate independently and avoid the need to park (and may circulate on the road network). Another concern is that since the arduous task of driving a car would be eliminated, more people may be attracted to travel by automobile since they could spend the time working or relaxing. Cape Cod MPO staff will work with MassDOT help prepare the County's transportation system to maximize the benefits and minimize the detriments of C/AV deployment.*

8. ENABLE AND PROMOTE A UBIQUITOUS ELECTRIC CHARGING (AND/OR ALTERNATIVE FUEL) INFRASTRUCTURE

The Commonwealth should continue to facilitate the establishment of a statewide electric charging network –and/or the infrastructure needed for other alternative fuels –that is fast, equitable, robust, and resilient in order to support a growing fleet of zero emission vehicles (ZEVs). The Commonwealth should develop standards or incentives for vehicle (driven by humans or driverless) to be electric, to charge during off-peak hours, and to be available to deliver energy back to the grid at peak times. *Cape Cod MPO staff will work with MassDOT to identify strategic locations for deployment of charging infrastructure. Through the County's Regional Policy Plan, the Cape Cod Commission encourages land development projects to include appropriate charging equipment*.

9. ESTABLISH A GOAL THAT ALL NEW CARS, LIGHT DUTY TRUCKS, AND BUSES SOLD IN MASSACHUSETTS WILL BE ELECTRIC BY 2040

Achieving the Commonwealth's 2050 Global Warming Solutions Act (GWSA) mandate will require the near-complete transition of our vehicle fleet (cars, trucks and buses) to electric vehicles or other zero-emission vehicle (ZEV) technology. Because vehicle fleets turn over slowly, for vehicles on the road to be electric by 2050, the Commonwealth should establish the goal for vehicle sales to be electric by no later than 2040 (perhaps sooner in some vehicle classes). *The Cape Cod MPO supports this policy*.

10. ESTABLISH A REGIONAL, MARKET-BASED PROGRAM TO REDUCE TRANSPORTATION SECTOR GREENHOUSE GAS (GHG) EMISSIONS

The Commonwealth should publicly support the prompt development and implementation of a regional program that uses market mechanisms and public investment as a means to limit GHG emissions from the transportation sector. The Commission also recommends exploring the adoption of a regional Low Carbon Fuel Standard. The Massachusetts EOEA has produced a policy statement for a Transportation Climate Initiative (TCI). A goal of this initiative is to "design a regional low-carbon transportation policy proposal that would cap and reduce carbon emissions from the combustion of transportation fuels… and allow each TCI jurisdiction to invest proceeds from the program into low-carbon and more resilient transportation infrastructure." *The Cape Cod MPO staff will work with MassDOT to explore these strategies.*

11. MAKE TRANSPORTATION INFRASTRUCTURE RESILIENT TO A CHANGING CLIMATE

The Commonwealth should develop vulnerability assessments for all publicly-owned or funded transportation infrastructure in Massachusetts across all agencies, the outcomes of which can then inform capital planning. MassDOT should develop and disseminate resiliency-oriented statewide design standards for transportation infrastructure, including infrastructure owned by the MBTA and the RTAs; by 2020, no transportation-related project should be built that does not conform to those standards. *Cape Cod MPO staff continue to work with member towns to develop plans for strategic improvement of critical transportation infrastructure. This of particular concern to Cape Cod as each of the 15 towns in Barnstable County are of varying degree susceptible to damage from flooding and other hazards associated with climate change*.

12. ENSURE SUFFICIENT ELECTRIC CAPACITY

As electric vehicle penetration accelerates, Massachusetts should work in close coordination with ISO New England (ISO-NE) and other states to ensure that sufficient electricity continues to be available to provide reliable, clean, and competitively priced power supplies for all electricity users in the Commonwealth. *The Cape Cod MPO supports state and local efforts to provide these services.*

13. ADOPT DENSE, MIXED-USE, AND TRANSIT-ORIENTED LAND USE POLICIES

Municipalities should accelerate the adoption of land use regulations that promote density and the use of shared vehicles and active and shared transportation modes. The Commonwealth should consider accelerating local progress in this area through incentives and regulations. *The Cape Cod Commission, through Barnstable County's Regional Policy Plan, works with member communities and developers through regulation and local comprehensive plans to locate development in Activity Centers. These centers are intended to create the density necessary for public transit, bicycling, and walking to succeed as transportation options*.

14. ENABLE GATEWAY CITIES AND THE REGIONS THEY ANCHOR TO COMPETE FOR RESIDENTS AND JOBS

The Commonwealth's transportation providers –including MassDOT, MBTA, and the RTAs –should support opportunities for housing and economic development in Gateway Cities and other regional hubs that have the potential to act as economic anchors within their respective regions. *Cape Cod MPO staff will work with MassDOT to explore this strategy. Part of this effort will be coordinated with the Cape Cod Commission's Regional Policy Plan's strategies to guide development.*

15. COORDINATE THE PLANNED REINVENTION OF THE MBTA COMMUTER RAIL SYSTEM WITH LOCAL, REGIONAL, AND STATE LAND USE AND ECONOMIC DEVELOPMENT STRATEGIES

MBTA should work with stakeholders to compile a menu of new service options for the commuter rail network by the end of 2019 and then develop detailed information on the costs (both capital and operating) and benefits of each of the service models. Regional planning officials and local elected officials in commuter rail-served communities should develop plans to support near-term increases in ridership and the transition to broader, interconnected service models. *Cape Cod MPO staff will work with MassDOT to explore extending passenger rail service to Cape Cod communities such as Buzzards Bay and Hyannis. Service to these areas has been identified as a priority of several updates of the Regional Transportation Plan.*

16. PROVIDE BETTER MOBILITY OPTIONS IN RURAL COMMUNITIES

MassDOT, working with MPOs and local municipalities, should develop strategies for providing rural Massachusetts with viable transportation options to supplement privately-owned vehicles. The Commonwealth should designate appropriate state agencies to work with the private sector to ensure that necessary infrastructure is available to support deployment of C/AV and TNC technologies throughout the state, including in rural areas. Many of Cape Cod's communities share rural limitations such as remoteness from activity centers and lower densities that make transit less viable. Challenges are particularly acute for residents of the Outer Cape towns who must travel great distances for many critical services such as healthcare; this has a direction impact on community health. The trip from Provincetown to the nearest hospital (Cape Cod Hospital in Hyannis) is the longest among all communities across the Commonwealth. *Cape Cod MPO staff will work with MassDOT, the Cape Cod Regional Transit Authority, municipalities, and local transportation, health and community organizations to explore strategies and implement solutions that improve mobility options for the rural communities on Cape Cod.*

17. PREPARE MASSDOT AND OTHER TRANSPORTATION-RELATED ENTITIES TO EFFECTIVELY OVERSEE A CHANGING TRANSPORTATION SYSTEM

To prepare the Commonwealth's transportation system for the inevitable changes of tomorrow, the Governor should consider specific organizational changes to MassDOT and other agencies that allow better focus, alignment, and results, including the continuation of a dedicated MBTA Board, a new paradigm for MassDOT, MBTA, and Regional Transit Authorities, and plans for data-sharing to

enable improved services and options for the transportation system. *The Cape Cod MPO supports this effort.*

18. DEVELOP A FISCALLY SOUND AND RESPONSIBLE TRANSPORTATION RESOURCE PLAN

Among the most significant contributions that today's decision makers could make to the public for the year 2040 is to commit to providing sufficient resources for the proper maintenance, operation, and upgrades to the state's transportation network. The Governors' commission concludes its report with this recommendation, not because it is the least important, but because the promise found in our earlier recommendations can only be achieved through a long-term commitment to providing the resources necessary to operate and maintain the Commonwealth's evolving transportation system. This begins with a commitment to eliminate the longstanding backlog of today's identified priority deferred MBTA and MassDOT maintenance projects to achieve safe, efficient services and asset conditions by 2030. Only then will the Commonwealth be able to fully turn its attention to effectuating the Commission's vision for 2040. *The Cape Cod MPO supports this effort.*

Chapter 5: Financial Plan

The Financial Plan sent forth in this chapter sets the regional priorities for surface transportation spending for the next 25 year.

LEGISLATIVE BACKGROUND

Federal legislation that contains requirements for transportation plans, programs and projects includes the current legislation: *Fixing America's Surface Transportation* (FAST) and the outgoing legislation *Moving Ahead for Progress in the 21st Century* (MAP-21) as well as the *Clean Air Act Amendments of 1990*.

On December 4, 2015, President Obama signed the *Fixing America's Surface Transportation* (FAST) Act (Pub. L. No. 114-94) into law—the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment. The FAST Act authorizes $305 billion over fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs. The FAST Act maintains a focus on safety, keeps intact the established structure of the various highway-related programs managed by USDOT, continues efforts to streamline project delivery and, for the first time, provides a dedicated source of federal dollars for freight projects.

FAST creates a streamlined, performance-based, and multimodal program to address the many challenges facing the U.S. transportation system. These challenges include improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery.

FUNDING SOURCES

The primary source of funding for implementation of the RTP projects and programs is from the federal Highway Trust Fund. Distribution of Highway Trust Fund revenues are appropriated by Congress for surface transportation purposes through the United States Department of Transportation (USDOT) Federal Highway Administration (FHWA) and the USDOT Federal Transit Administration (FTA) as dedicated through federal legislation. The current federal legislation, *Fixing America's Surface Transportation* (FAST), was signed into law in 2015.

In addition to federal funds, the Commonwealth of Massachusetts provided significant funds to the region. Highway projects can either be funded by a combination of federal and state funds (typically 80-90% federal funding) or fully funded by the state. For transit projects typically the state amount may average at a higher percentage due to the state funding a large percent of operating cost.

Receipts for the federal Highway Trust Fund are collected primarily from the federal fuel tax. Funding for transportation in Massachusetts comes from a combination of the state fuel tax, toll revenue, transportation-related fees (i.e. motor vehicle registration), and a portion of the state sales tax.

Local funds also play a large role in the advancement of projects with towns paying for the design of most highway projects with their borders. A town may even pay for the design of an improvement at a state-owned location if it sees the advancement of the project as a benefit to the town. Local funds are also occasionally used to cover items not covered by other sources such as landscaping above standard design or improvements to utilities. Transit services also have a local share in funding, with a portion of service operating costs assessed to the towns through the Cape Cod Regional Transit Authority.

ESTIMATED AVAILABLE FUNDS

Both the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), in partnership will MassDOT, provide funding to the region through a number of programs.

Federal Highway Administration Source Funds

MassDOT divides the federal highway funding that it receives between "regional target funding," which is allocated at the discretion of the MPOs for regional priority projects on the federal aid transportation system, and funding that is allocated at MassDOT's discretion for use principally on the state-owned transportation system.

Each MPO's regional target funding is composed of shares of Congestion Mitigation and Air Quality Improvement Program (CMAQ), Highway Safety Improvement Program (HSIP), Transportation Alternatives Program (TAP), and Surface Transportation Program (STP) funding. "Statewide" funding that is allocated at MassDOT's discretion includes funding from the federal highway sources detailed in Table 15.[40]

[40] https://www.mass.gov/service-details/funding-considerations

TABLE 15. FHWA Funding Programs

PROGRAM	DESCRIPTION
Congestion Mitigation and Air Quality Improvement (CMAQ)	A wide range of projects in air quality nonattainment and maintenance areas for ozone, carbon monoxide, and small particulate matter, which reduce transportation-related emissions.
Highway Safety Improvement Program (HSIP)	Implementation of infrastructure-related highway safety improvements
National Highway Performance Program (NHPP)	Improvements to interstate routes, major urban and rural arterials, connectors to major intermodal facilities, and the national defense network. Also includes replacing or rehabilitating any public bridge, and resurfacing, restoring, and rehabilitating routes on the Interstate Highway System.
Surface Transportation Block Grant (STBG) [Surface Transportation Program (STP) under MAP-21]	A broad range of surface transportation capital needs, including roads; transit, sea, and airport access; and vanpool, bicycle, and pedestrian facilities.
Transportation Alternatives (TA) [Transportation Alternatives Program (TAP) under MAP-21]	Construction of infrastructure-related projects (for example, sidewalk, crossing, and on-road bicycle facility improvements).
Bridge Replacement and Rehabilitation Program (BR)	Replacement or repair of bridges on or off the federal aid system.
Ferry Boat Program (FBP)	Project to construct ferry boats and ferry terminal facilities.
National Highway Freight Program (NHFP)	Projects that improve the efficient movement of freight on the National Highway Freight Network

In early 2019, MassDOT provided estimated available funds for the Cape Cod region from Federal Highway Administration (FHWA) including the state matching funds as presented in Table 16.

TABLE 16. Federal Highway Administration Funding for Cape Cod with State Match

TIME FRAME	FUNDING AVAILABLE FOR MPO (REGIONAL DISCRETIONARY)	NON-INTERSTATE DOT PAVEMENT	REMAINING STATEWIDE PROGRAMS (EXCLUDING STATEWIDE BRIDGE PROGRAM)	NON-FEDERAL AID PRESERVATION (BRIDGES AND ROADWAYS)	TOTAL ESTIMATED AMOUNT
2020-2024	$56,895,130	$25,313,081	$51,463,970	$22,925,500	$156,597,681
2025-2029	$65,230,867	$30,132,209	$57,837,802	$23,429,861	$176,630,739
2030-2034	$80,095,056	$36,998,450	$71,017,330	$23,945,318	$212,056,154
2035-2039	$88,773,417	$41,007,261	$78,712,113	$24,472,115	$232,964,906
2040	$18,881,933	$8,722,164	$16,741,913	$5,002,100	$49,348,110
2020-2040 Totals	$309,876,403	$142,173,165	$275,773,128	$99,774,894	$827,597,590

Federal Transit Administration Source Funds

The Federal Transit Administration (FTA) provides financial assistance to develop new transit systems and improve, maintain, and operate existing systems. FTA oversees thousands of grants to state and local transit providers through the FTA regional offices. The grantees are responsible for managing their programs in accordance with federal requirements and FTA is responsible for ensuring that these grantees follow the mandates along with statutory and administrative requirements. FTA funding programs are summarized in Table 17. [41]

[41] https://www.massdot.state.ma.us/planning/Main/PlanningProcess/FundingConsiderations.aspx

TABLE 17. FTA Funding Programs[41]

PROGRAM	DESCRIPTION
Section 5307 – Urbanized Area Formula Grant Program	This program funds routine capital investments, including bus purchases, but for some smaller systems, a portion can be used to defray transit system operating expenses.
Section 5310 – Elderly Persons and Persons with Disabilities Formula Program	This program is intended to enhance mobility for seniors and persons with disabilities by providing funds for programs to serve the special needs of transit-dependent populations beyond traditional public transportation services and Americans with Disabilities Act (ADA) complementary paratransit services.
Section 5339 – Bus and Bus Facilities	This program seeks to provide capital funding to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities.

In early 2019, MassDOT provided estimated available funds for the Cape Cod region from Federal Transit Administration (FTA) including the state matching funds as presented in Table 18. The CCRTA is actively seeking additional funding through various FTA discretionary programs and any other sources that become available to better advance the goals of the RTP.

TABLE 18. Federal Transit Authority Funding for Cape Cod with State Match

TIME FRAME	SECTION 5307	SECTION 5310	SECTION 5339	TOTAL
2020-2024	$49,201,229	$1,737,859	$4,798,282	$55,737,370
2025-2029	$54,535,495	$1,927,217	$5,790,287	$62,252,999
2030-2034	$60,448,088	$2,137,208	$6,987,382	$69,572,678
2035-2039	$67,001,707	$2,370,079	$8,431,964	$77,803,750
2040	$14,247,997	$504,146	$1,885,011	$16,637,154
2020-2040 Totals	$245,434,516	$8,676,509	$27,892,926	$282,003,951

UNIVERSE OF PROJECTS

The universe of projects identified for funding can be divided into one of four funding categories:

- Transportation Projects
- Transportation Programs
- Smart Solutions
- Transportation Studies

A "**transportation project**" is specific in the location and nature of construction or other activity that is anticipated. Examples of potential transportation projects include the reconfiguration of Exit 1C on Route 6 and the construction of a new multi-use trail from the end of the existing Shining Sea Bikeway to the Cape Cod Canal Path. Any project over $20 Million in total cost must be included in the RTP to receive federal funding. Projects under $20 Million may be included in the RTP depending on the level to which the project has been developed.

Given that the RTP covers a 25-year time-span it beyond our ability to define every specific transportation project that will implemented. Therefore, "**transportation programs**" identifying categories of specific transportation projects that are anticipated to be implemented and identifying funds to pay for these bundles of transportation projects. Examples of potential transportation programs include roadway resurfacing, intersections improvements, and transit operating assistance and capital needs.

"**Smart solutions**" are initiatives that do not require major investments in capital or operations. Examples of potential smart solutions include coordination of Cape Cod Regional Transit Authority and ferry schedules with each other and the development of a Cape-wide bicycle route system.

Finally, "**transportation studies**," seek to solve problems through planning efforts that focus on analysis of alternatives and public participation. These transportation studies ultimately identify solutions to problems that may be in the form of future transportation projects, programs, and/or smart solutions.

See Appendix M for a complete listing of the Universe of Projects for the 2020 RTP. This list constitutes unmet need for the region.

As is demonstrated by the extensive program of projects, the anticipated system wide need for the region greatly exceeds the anticipated revenues. Strategic decisions will need to be made to determine where the limited funded will be spent and which project will have to be delayed.

PROJECT ANALYSIS

In order to determine the projects to be contained within the financial constraint of the document, analysis was conducted on the universe of projects. Analysis of projects was limited to projects $10 million or greater with the expectation that smaller projects could be programmed in the bundle of "other TIP projects" included in the financial constraint of this document. Some projects under $10 million were included if it was determined that the potential benefits were commensurate with these larger scale projects. Analysis was conducted with a subcommittee of the CCJTC where each project was considered for potential benefit, estimated cost, consistency with the objectives of the RTP, impact on performance targets, project score (where available), equity as it relates to minority, low income, Limited English Proficiency (LEP) and other protected populations, and GHG reduction potential. Considering these factors and the anticipated available funding, a financially constrained

program of projects was developed with the CCJTC subcommittee and reviewed and approved by the Cape Cod MPO.

TRANSIT IMPROVEMENT/EXPANSION PROJECTS

The CCRTA evaluates its routes and schedules on a regular basis in an effort to best meet the needs of the region. Where potential improvements or expansions are identified, funding is sought to support their implementation. Most often service expansions begin as demonstration projects and, when successful, long term-term funding is sought for their continued operation.

Two recent examples of demonstration projects are the Bourne Run and the Sandwich Line. After successful demonstration periods, their operation continues extending transit options to a larger portion of the Cape's population.

The CCRTA also continually reviews their existing routes to look for ways to improve the customer experience and system-wide efficiency. In consultation with a variety of community members, the CCRTA made such changes to their routes servicing Hyannis to improve access to pharmacies, grocery stores, the senior and youth centers, shopping areas, and a wide range of other locations.

Other service improvements or expansions that have been or are under considered include:

- Extending evening service hours on fixed routes
- Extending weekend service on fixed routes including Sunday service
- Providing fixed route service in underserved areas of the Mid-Cape
- Providing increased frequency on fixed routes in urban areas (i.e. Hyannis, Provincetown, Falmouth)
- Providing new seasonal services (i.e. Chatham Shuttle)

At this time there is not sufficient demand to sustain these services and/or the CCRTA does not anticipate sufficient funding for their operation. Based on current projections, the CCRTA anticipates that all of the levels of transit funding included in this document will maintain existing service, but not be sufficient to support significant expansions to the system.

In addition to service improvements or expansions, the CCRTA considers investments in parking and in transit-oriented-development in the vicinity of the Hyannis Transportation Center as critical to the increase use of transit in the region. The CCRTA is also supportive of expansions to Cape Flyer rail service as it provides an important non-automobile option to Cape Cod that complements that transit services provided by the CCRTA.

As funding opportunities arise, the CCRTA will consider these and any other service improvement, expansion, or transit-supportive project that improves transit options for the region.

HIGHWAY PROGRAM OF PROJECTS

It is the responsibility of the Cape Cod MPO to select regional priority projects to be funded by the available highway regional target funds. With only $304 million anticipated in highway regional target funds available from 2020 through 2040, there is significantly more need than available funding.

Table 19 presents the Cape Cod MPO's recommended program of project for 2020 through 2040. This program of projects balances the need for large-scale regional projects that are specifically identified with smaller-scale projects included as a bundle of "Programs and Smart Solutions."

Project costs are shown with both 2020 estimated costs and, in order to account for inflation, year of expenditure (YOE) costs that include a 4 percent annual inflation rate.

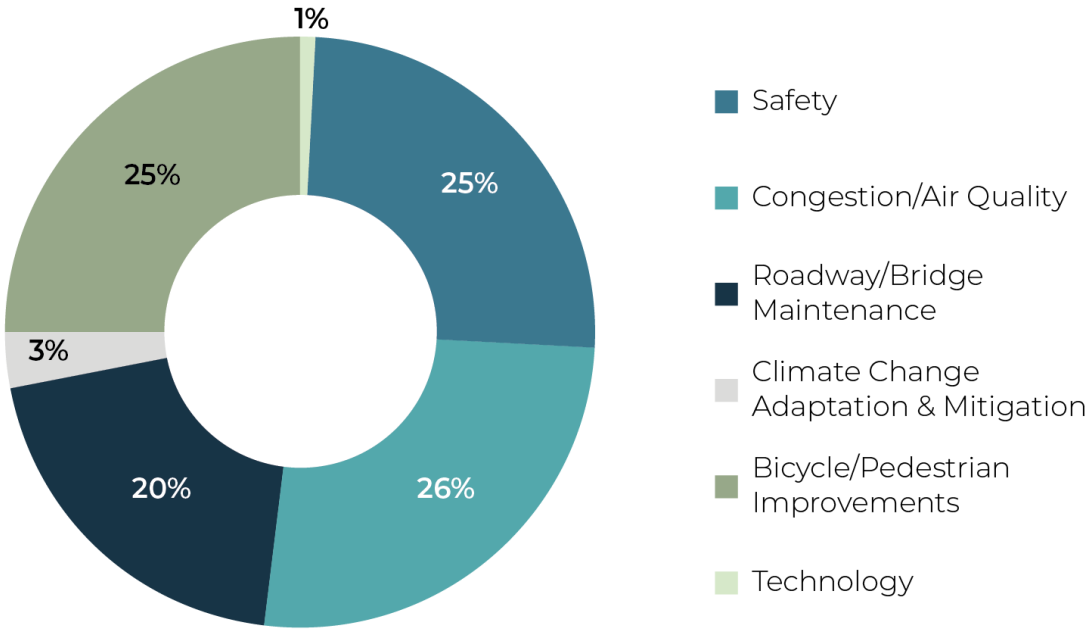
TABLE 19. Highway Regional Target Funding – Program of Projects

YEARS OF FUNDING	PROJECT / PROGRAM	2020 TOTAL ESTIMATED COST	TOTAL-YEAR OF EXPENDITURE (YOE) ESTIMATED COST
2020-2024	Mashpee 151	$15,000,000	$16,224,000
	Route 28 Multimodal Improvements	$13,000,000	$14,060,800
	Rail Trail Extensions (Mid- and Upper-Cape)[1]		[$16,780,305]
	Scenic Highway Median Barrier	$10,000,000	$10,816,000
	Programs		$15,794,330
	Subtotal Funding		$56,895,130
2025-2029	Rail Trail Extensions (Outer Cape)	$20,000,000	$26,318,636
	Hyannis Access Phase II (Yarmouth Road Corridor)	$12,000,000	$15,791,181
	Scenic Highway/Rte. 25 Connector Ramp	$7,000,000	$9,211,522
	Route 6 Exit 1C Relocation[2]		[$51,000,000]
	Route 6 Eastbound Additional Travel Lane to Exit 2[2]		[$48,000,000]
	Sagamore Bridge Approach[2,3]		[$64,000,000]
	Bourne Bridge Approach[2,3]		[$84,000,000]
	Programs		$13,909,528
	Subtotal Funding		$65,230,867
2030-2034	Route 6 Outer Cape Safety & Multimodal Improvements	$17,000,000	$27,217,548
	Rail Trail Extensions (Mid- and Upper-Cape) remainder	$19,000,000	$30,419,612
	Route 28 Multimodal Improvements	$7,000,000	$11,207,226
	Belmont Circle Reconstruction[2]		[$23,000,000]
	Bourne Rotary Reconstruction (Interchange)[2]		[$87,000,000]
	Programs		$11,250,671
	Subtotal Funding		$80,095,056
2035-2039	Interchange Improvements Route 6 – priority locations	$20,000,000	$38,958,010
	Bike Path Connectors to town centers	$10,000,000	$19,479,005
	Programs		$30,336,402
	Subtotal Funding		$88,773,417
2040	Programs		$18,881,933
	Subtotal Funding		$18,881,933
2020 - 2040 Total			$309,876,403

[1] Projects funded in the *Federal Fiscal Year Cape Cod 2020-2024 Transportation Improvement Program* through a combination of state and federal sources outside of the regional target. Includes the Yarmouth-Barnstable Cape Cod Rail Trail extension, the Sandwich Shared Use Path along Service Road, and Phase I of the Bourne Rail Trail.
[2] Projects recommended in the *Summer 2019 DRAFT MassDOT Cape Cod Canal Transportation Study*. Projects to be funded through a combination of state and federal sources outside of the regional target.
[3] Contingent upon United States Army Corps of Engineers' *Major Rehabilitation Evaluation Report* recommending replacement of the Bourne and Sagamore Bridges.

In allocating the available highway regional target funding, particularly for the bundled "Programs and Smart Solutions," it is important to keep a balance between different types of projects. Based on feedback from the budget challenge in the RTP survey, recommendations from the CCJTC project selection subcommittee, and, ultimately the recommendation of the Cape Cod MPO, Figure 37. represents the recommended distribution of funding across the range of programs. This recommended distribution will be used to inform TIP project selection through the development of revised TIP scoring criteria, as needed. Roadway maintenance, bridge maintenance, and transit are also often elements of these highway regional target projects but are addressed primarily through statewide funding streams. A discussion of the overall RTP funding distribution is presented in the next section.

FIGURE 37. Highway Regional Target Funding Distribution



Analysis of Highway Regional Target Projects

An analysis of potential impacts (positive or negative) on low income, minority, and LEP populations was conducted on regional target projects and is presented in Table 20. Of the approximately $304 million in highway regional target funding, approximately $218 is programmed for specific projects while the remainder will go to "Programs and Smart Solutions." Analysis was limited to the specific

projects, with existing TIP analysis procedures ensuring that the "Programs and Smart Solutions" will be programmed in an equitable way.[42]

TABLE 20. Highway Regional Target Projects – Income, Minority, and LEP Population Impacts

PROJECT	LOW INCOME [I], MINORITY [M], OR LIMITED ENGLISH PROFICIENCY [LEP] POPULATION AREA PROXIMATE	NATURE OF IMPACT ON LOW INCOME, MINORITY, OR LEP AREA
Mashpee: Route 151	M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Route 28 Multimodal Improvements: Various Locations	TBD	Improved bicycle/ pedestrian access, safety
Rail Trail Extensions (Mid- and Upper-Cape)	I, M, LEP	Improved bicycle/ pedestrian access, safety
Scenic Highway Median Barrier	M	Improved traffic flow, safety
Rail Trail Extensions (Outer Cape)	I, LEP	Improved bicycle/ pedestrian access, safety
Hyannis Access Phase II (Yarmouth Road Corridor)	I, M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Route 6 Outer Cape Safety & Multimodal Improvements	I, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Cape Cod Canal Area Transportation Improvements	M	Improved traffic flow, safety
Interchange Improvements – Priority Locations	TBD	Improved traffic flow, safety
Bike Path Connectors to Town Centers	TBD	Improved bicycle/ pedestrian access, safety

[42] A recent review of the past ten years of highway projects in the Cape Cod TIP indicated that approximately 67% of spending was on projects within and proximate to low income, minority, and LEP populations. This represents an investment in transportation infrastructure serving these areas that is proportionally higher than other areas on Cape Cod.

Of the approximately $138 million programmed for specific projects, approximately 61% was on projects within and proximate to minority populations, 84% was on projects within and proximate to low income populations, and 72%, was on projects within and proximate to LEP populations. Given the regional nature of these projects, even projects that are not proximate to these identified population are likely to positively impact these identified populations as they travel through these locations to access regional services. This represents an investment in transportation infrastructure serving these areas proportionally higher than other areas on Cape Cod. In summary, the areas with higher proportions of low income and minority populations see more transportation dollars spent than other areas on Cape Cod. Further analysis of highway regional target projects is presented in Appendix M.

An analysis of regional target projects was also analyzed in relation to greenhouse gas (GHG) emissions. As presented in Table 21, it is anticipated that most of the projects will result in nominal decreases in emissions for sidewalk and/or bicycle infrastructure or other improvements. It is anticipated that other projects will result in a quantifiable decrease in emissions that will need to be verified by statewide modeling efforts.

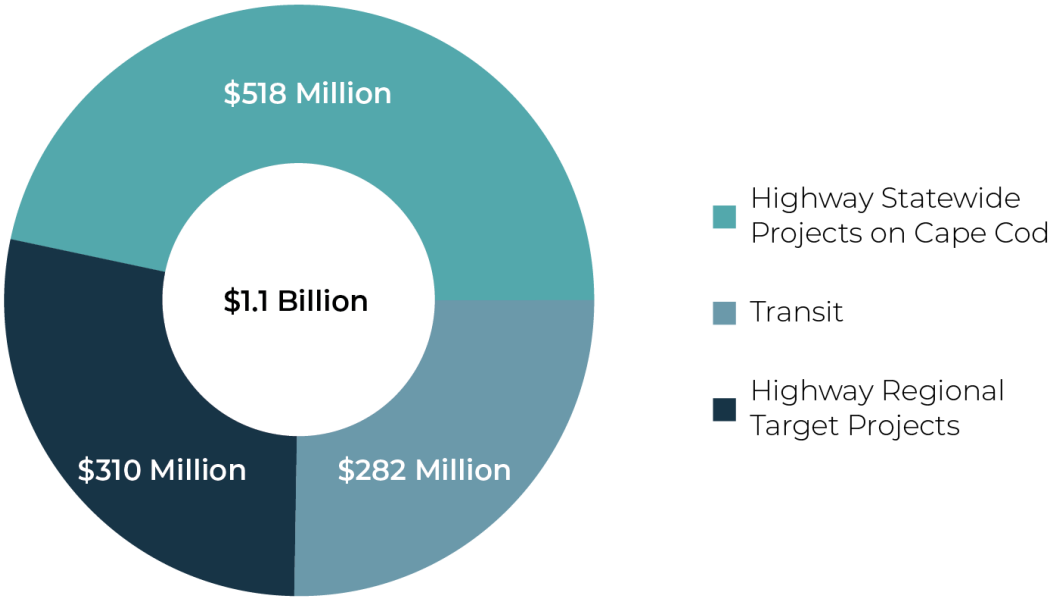
TABLE 21. Highway Regional Target Projects – Anticipated GHG Impacts

PROJECT	ANTICIPATED GHG IMPACT
Mashpee: Route 151	Assumed Nominal Decrease in Emissions from Sidewalk and Bicycle Infrastructure
Route 28 Multimodal Improvements: Various Locations	Assumed Nominal Decrease in Emissions from Sidewalk and Bicycle Infrastructure
Rail Trail Extensions (Mid- and Upper-Cape)	Assumed Nominal Decrease in Emissions from Bicycle Infrastructure
Scenic Highway Median Barrier	Assumed Nominal Decrease in Emissions from Roadway Infrastructure
Rail Trail Extensions (Outer Cape)	Assumed Nominal Decrease in Emissions from Bicycle Infrastructure
Hyannis Access Phase II (Yarmouth Road Corridor)	Assumed Nominal Decrease in Emissions from Sidewalk and Bicycle Infrastructure
Route 6 Outer Cape Safety & Multimodal Improvements	Assumed Nominal Decrease in Emissions from Sidewalk and Bicycle Infrastructure
Cape Cod Canal Area Transportation Improvements	Project included MassDOT modeling used to develop the "Evaluation and Reporting of Statewide Greenhouse Gas Reductions in Transportation" presented in s Appendix N
Interchange Improvements – Priority Locations	Assumed Nominal Decrease in Emissions from Roadway Infrastructure
Bike Path Connectors to Town Centers	Assumed Nominal Decrease in Emissions from Bicycle Infrastructure

CONCLUSION

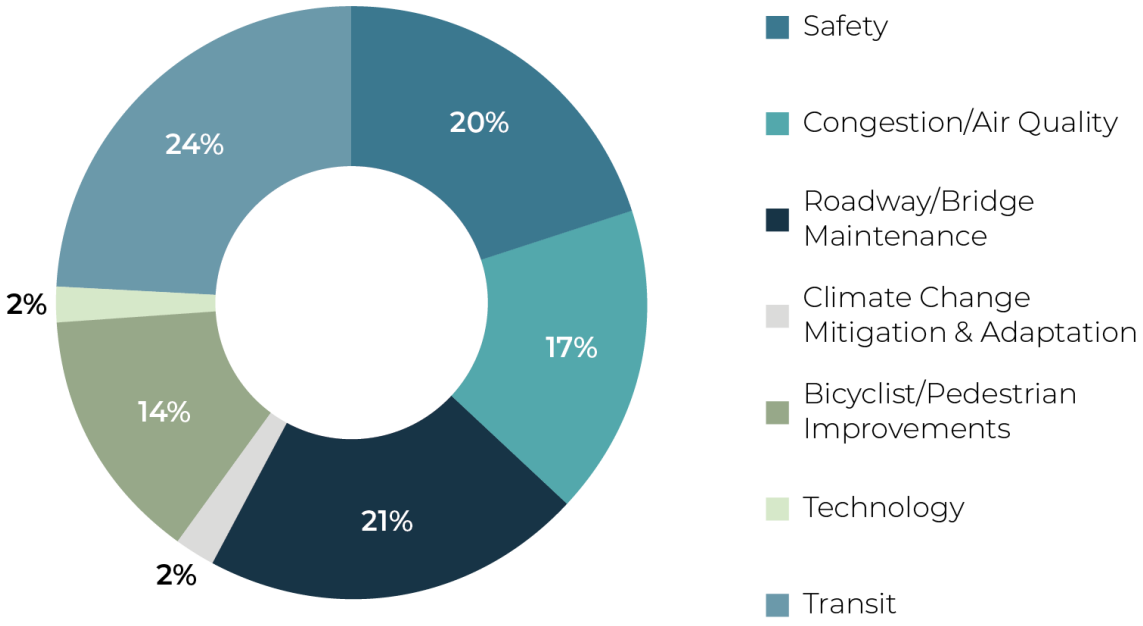
The spending on highway regional target projects, highway statewide projects on Cape Cod, and the transit service and projects, summarized in Figure 38. , all contribute to the development of a transportation system that will serve the region for years to come.

FIGURE 38. Summary of Anticipated Funding



The RTP vision, goals, and objectives set a framework for the spending of surface transportation funds in the region. Based on the overall program established in this report, the anticipated $1.1 billion is allocated to overall spending categories as summarized in Figure 39.

FIGURE 39. Summary of Recommended RTP Spending Distribution



While there is still significant unmet need for the region, see Appendix M, the $1.1 billion of anticipated surface transportation funding available over the next 25 years represents a significant investment in the region.

List of Abbreviations

ADA	Americans with Disabilities Act
BMP	Best Management Practices
CCC	Cape Cod Commission
CCJTC	Cape Cod Joint Transportation Committee
CCRTA	Cape Cod Regional Transit Authority
CEDS	Comprehensive Economic Development Strategy
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CMP	Congestion Management Process
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FFY or FY	Federal Fiscal Year or Fiscal Year
GHG	Greenhouse Gas
GIS	Geographic Information System
GWSA	Global Warming Solutions Act
ITS	Intelligent Transportation System(s)
LEP	Limited English Proficiency
LID	Low-impact Development
MAP-21	Moving Ahead for Progress in the 21st Century
MassDER	Massachusetts Division of Ecological Restoration
MassDOT	Massachusetts Department of Transportation
MPO	Metropolitan Planning Organization
NHPP	National Highway Performance Program
NHS	National Highway System
PPP	Public Participation Plan
RPP	Regional Policy Plan
RTA	Regional Transit Authority
RTP	Regional Transportation Plan
STIP	Statewide Transportation Improvement Program
STP	Surface Transportation Program
TAP	Transportation Alternatives Program
TCI	Transportation & Climate Initiative
TDM	Transportation Demand Management
TIP	Transportation Improvement Program
Title VI	Title VI of the Civil Rights Act of 1964
UPWP	Unified Planning Work Program
USDOT	United States Department of Transportation
VMT	Vehicle Miles Traveled
YOE	Year of Expenditure

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix A: Historical Context

JULY 15, 2019

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Technical Appendix A: Historical Context

Cape Cod and its transportation system is a story of a continually evolving community with ever-changing transportation needs. This appendix will touch on how the region arrived where it is today, what today's transportation landscape looks like, and what are the challenges and opportunities that lie ahead is maintaining the region's connection to the past while looking toward the future.

Additional information on the region's development and land use patterns over time has been compiled by the Cape Cod Commission and is available in an online Chronology Viewer. The Cape Cod Commission Chronology Viewer is available at:

www.capecodcommission.org/chronology/

The Chronology Viewer explores how the population is changed over time, where and when houses where constructed, and when key infrastructure was developed.

RESOURCE DEPLETION, TECHNOLOGICAL CHANGE, AND GOVERNMENT POLICY

Cape Cod's development and economy have been heavily influenced by three factors:

- Resource depletion,
- Technological change, and
- Government policy.

The Cape has seen many ways of making a living come and go as a result of these three factors. These include agriculture, fin fishing, shell fishing, whaling, salt, limited clothing and shoe manufacturing, and glass manufacturing. The Cape's current economy is dominated by tourism.

At the time the Cape was settled by Europeans in the colonial period it was rich in natural resources including hardwood forests, fertile soil, and waters teaming with marine life. By the end of the Colonial period the region has been clear cut and the soils exhausted.

The overcutting of woodlands and excessive farming had reduced soil fertility, resulting in lower than average crop yields. The lack of ground cover, combined with the effects of wind and water, resulted in

topsoil being eroded away, to one-third or one-half their 17th-century depths. This erosion may have been in part responsible for the silting in of numerous harbors and for the death of oyster beds.

Historical & Archaeological Resources of Cape Cod & the Islands, Massachusetts Historical Commission, 1986

The region had to import wood to heat homes and cook. Whaling on the Cape started with salvaging dead or stranded whales off the beach; by the end of that industry ships were sailing all the way to the South Pacific to find whales. Fishing peaked in 1851, employing over 3,200 in the industry. Like whaling, fishing was initially a near shore activity but gradually moved farther off shore as stocks were depleted. Today we face the near if not complete collapse of the cod fishery for which the peninsula is named. Even tourism is now threatened by environmental damage due to over development. Ponds and estuaries that were once pristine are clouded, mucky, and in some cases, devoid of marine life. Shell fishing beds are gone and swimming is no longer desirable in some places. Time will tell the fate of the tourism industry on Cape Cod.

Changes in technology have had a major impact on the economic and social history of the Cape. Technology has changed the scale of commercial activity everywhere by increasing both productivity and distribution. Advances in productivity, have in some cases accelerated the resource depletion discussed above.

By the early 1890s, Barnstable, Brewster, Wellfleet, Truro, and Province town had all built large numbers of these traps and weirs to supply both fish for market as well as bait for fishing vessels. Extensive trapping, however, had a severe effect on fish populations. When the mackerel disappeared from New England waters in the mid-1880s, many blamed the use of these traps.

Historical & Archaeological Resources of Cape Cod & the Islands, Massachusetts Historical Commission, 1986

The discovery of new resources elsewhere also had a great impact on major regional industries. For example, the opening of the first commercial oil well in Pennsylvania in 1859 significantly reduced the demand for whale oil for lighting. But transportation technology has possibly the greatest impact on the way of life, economy, and level of development on Cape Cod. The railroads brought the first significant influx of tourist, particularly summer residents, to the Cape as early as 1870.

None, however, were more prominent in their resort success than the Woods Hole Branch, opening in 1872. Although organized initially to serve the guano works at Woods Hole, the line quickly became instrumental in the development of Bourne, Falmouth, and, through the ferry terminal at Woods Hole, Martha's Vineyard and Nantucket. Small villages from Buzzards Bay to Woods Hole sprouted hotels and resort communities almost overnight.

Historical & Archaeological Resources of Cape Cod & the Islands, Massachusetts Historical Commission, 1986

The salt industry is perhaps the best example of how government action impacts the economy. The industry was made viable by a tariff placed on imported salt by the US government along with a subsidy to domestic manufacturers. Combine with improvements to the evaporation process, this led to a thriving salt industry on the Cape from the late 1700's to 1840's. At its peak, every town except for Mashpee and Bourne had multiple saltworks lining their beaches. But the industry virtually collapsed when the subsidy was removed and the US reduced the tariff on imports of salt.

Probably the chief reason for the decline in production, however, was the lowering of the duty on imported salt. Ever since 1790 there had been a duty of at least ten cents a bushel... In 1842, the duty on imported salt fell to 8¢ a bushel, and in 1846 it was changed to a 20% ad valorem scale, greatly to the advantage of foreign sources.

Historical & Archaeological Resources of Cape Cod & the Islands, Massachusetts Historical Commission, 1986

Another example of the government's role in the Cape's economy is its investment in roads, particularly interstates, in the 1950's. This changed the nature of tourism on Cape Cod as well as the development patterns which to date had been fairly concentrated in villages accessible by rail. This coincided with a stronger middle class with disposable income and a reduction in the cost of construction. Sprawling auto-oriented development has dominated since that time and been reinforced by zoning rules.

TRANSPORTATION INFRASTRUCTURE DEVELOPMENT

Cape Cod's transportation system has both shaped and been shaped by development patterns of the region. As our regional economy has evolved so too has our transportation infrastructure. From a reliance on ports and marine transport, to a steady growth by rail, and explosion of change fueled by the automobile – our region has undergone dramatic changes.

The first recorded European expedition to Cape Cod was led by Bartholomew Gosnold, who was credited with naming the peninsula in 1602. In 1620, the Pilgrims landed at Provincetown. This was different than previous European appearances because the Pilgrims were more interested in settling somewhere, rather than exploring and trading with the native Wampanoag tribe. Although this is how we traditionally tell the story of Cape Cod's history, it actually extends long before that.

Early Trail and Road Network

CONTACT (1500 - 1620) AND PLANTATION (1620 - 1692) PERIODS

By the time the Pilgrims arrived, there was an extensive trail network stretching from one end of the region to the other as shown in Contact Period map in Figure 1. Even this far back, we can see connections that would eventually become the road network of Cape Cod. As Native Americans and Europeans used the network more extensively, trails were upgraded to cartpaths or roadways. As shown in Figure 2, portions of present-

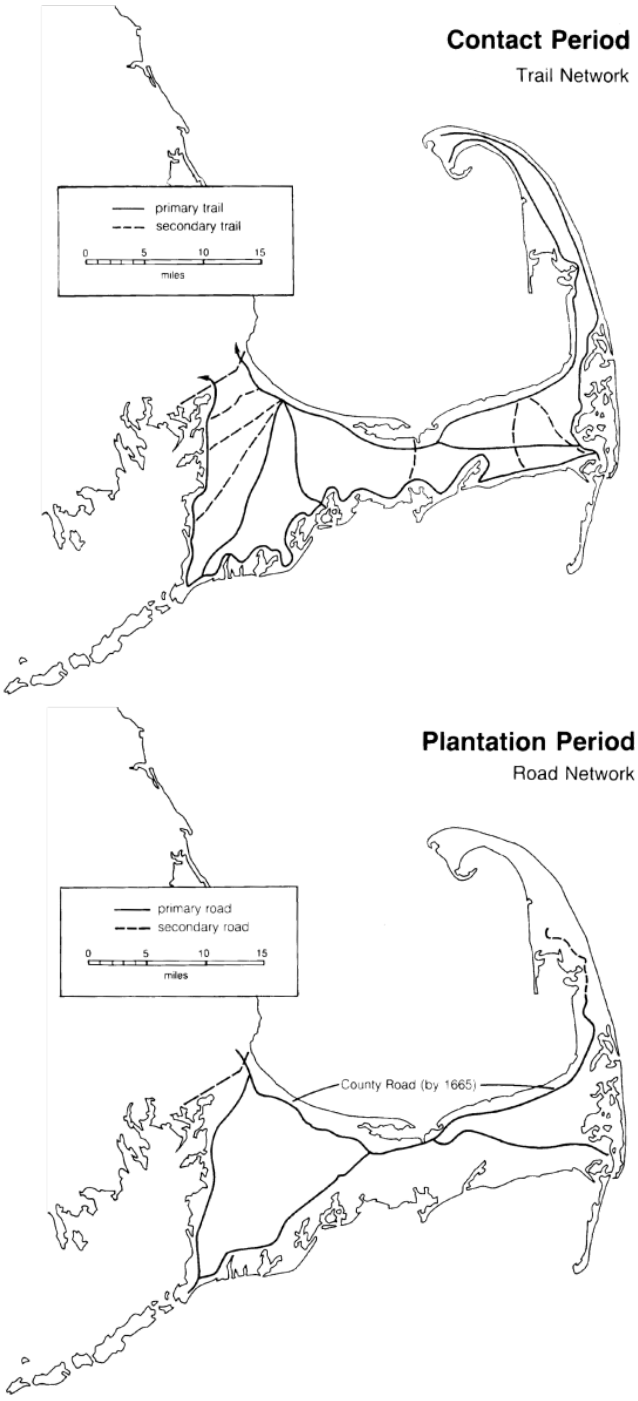


FIGURE 1. Early Trail and Road Network[1]

day Route 6A took shape as County Road.[1]

Expansion of Water Routes

COLONIAL (1692 - 1775) AND FEDERAL (1775-1830) PERIODS

As local transportation and commerce increased, water routes were the life blood of the region. Land routes were improved, widened, and expanded to support connection to the ports. Error! Reference source not found. shows the expansion of the road network and connection to water routes in these periods.[1]

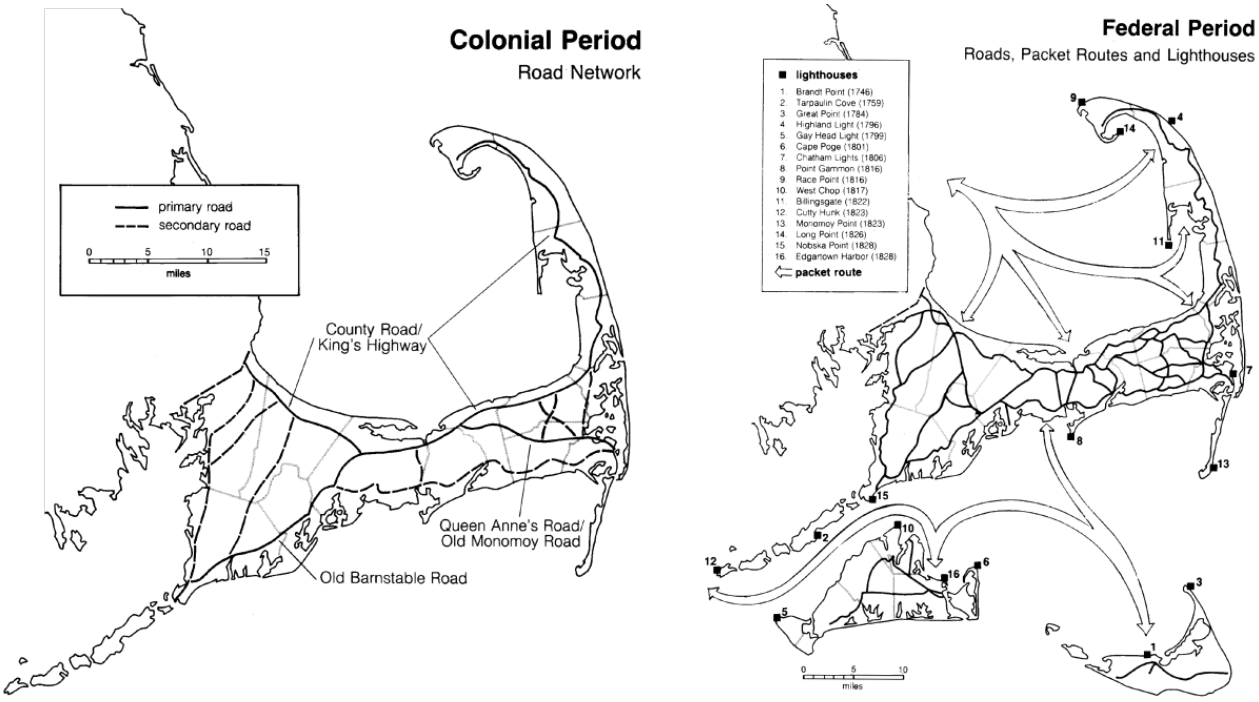


FIGURE 2. Expansion of Water Routes and Land Connections[1]

[1] Historic & Archeological Resources of Cape Cod & the Islands. Massachusetts Historical Commission. Originally published August 1986. PDF reprint version, 2007.

Expansion of Railroads

EARLY AND LATE INDUSTRIAL PERIODS (1830-1915)

The industrial period saw the development and expansion of railroads across the region. Still tied to major ports, as shown in Error! Reference source not found., rail served both freight-needs as well as the emerging tourism market.

This period saw multiple expansions of the rail network ultimately including connections to almost every town on Cape Cod. As the rail network expanded, development grew up around the train depot. These pockets of development thrived while rail transportation dominated the region. As the predominance of rail waned, some of these developments evolved to meet new needs while others did not.[1]

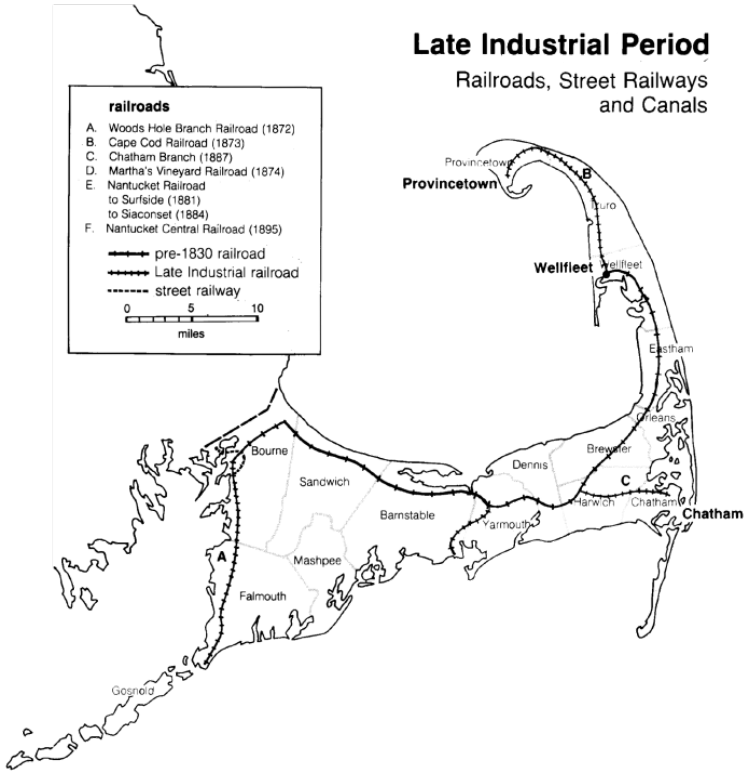


FIGURE 3. Rail Expansion[1]

Age of the Automobile

MODERN PERIOD TO PRESENT DAY (1915-)

The emergence of the automobile and tourism industry on Cape Cod forever changed the transportation network of the region. Construction of the Cape Cod Canal redefined the transportation landscape of the region. Expanding from the Cape Cod Canal, the transportation system was significantly expanded and modernized during the 20th century. As shown in the Error! Reference source not found., some of greatest expansions occurred in the 1950's.

TABLE 1. Industrial Period Rail Expansion

YEAR	MILESTONE
1935	Bourne, Sagamore, and Railroad bridges over the Cape Cod Canal
1950	Rt. 6: Sagamore Bridge to Hyannis (exit 6) – 2 lanes
1954	Rt. 6: Sagamore Bridge to Hyannis (exit 6) – 4 lanes
1955	Rt. 6: Hyannis (exit 6) to Dennis (exit 9) – 2 lanes
1956	Rt. 6: Dennis (exit 9) to Harwich/Brewster (exit 11) – 2 lanes
1958	Rt. 6: Harwich/Brewster (exit 11) to Orleans (exit 12) – 2 lanes
1959	Rt. 6: Orleans (exit 12) to Orleans/Eastham Rotary – 2 lanes
1967	Rt. 6: Hyannis (exit 6) to Yarmouth (exit 7) – 4 lanes
1971	Rt. 6: Yarmouth (exit 7) to Dennis (exit 9) – 4 lanes

HISTORIC PRESERVATION TOOLS

Cape Cod towns utilize a wide variety of tools to protect their historic resources. The most commonly used are local historic districts and demolition delay bylaws, though many towns have also adopted more specialized regulations. Some historic resource protections are initiated by town historical commissions, while others are spurred by planning boards, nonprofit historic societies, and neighborhood groups. Key information about tools such as historic inventories and districts is available at the Massachusetts Historical Commission (MHC)[2].

While these preservation tools are primarily applied to the demolition or modification of structures, a number of the tools apply to roadway work as well.

Inventories

Inventory is an important first step toward protecting a community's historic resources. Historic inventories can be used to teach people about their community's history and to guide town boards in future land use decisions. The MHC provides standardized inventory forms for different types of historic resources. The forms are typically filled out by local historical commission members, volunteers, or private consultants, and many Cape towns have sought grants to support this work.

[2] http://www.sec.state.ma.us/mhc/mhcidx.htm

Completed forms are kept both in the town and at MHC, which provides online access through its MACRIS database.[3]

Local Historic Districts

Local Historic Districts require review by a historic district commission for any exterior alteration to buildings and structures visible from a public way.

On Cape Cod, local historic districts in the towns of Barnstable, Dennis, Eastham, Harwich, and Provincetown were created under Chapter 40C (the Historic Districts Act) of Massachusetts General Law. The towns of Chatham and Falmouth have established local historic districts under special legislation. The Old Kings Highway Regional Historic District, covering portions of Sandwich, Barnstable, Yarmouth, Dennis, Brewster and Orleans, was also created by a special act of legislation. (See Error! Reference source not found.)

National Register Buildings and Districts

The National Register of Historic Places is the official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.[4]

National Register of Historic Places offers special protection for individual historic buildings and properties in historic districts on Cape Cod. As shown in Error! Reference source not found., historic properties are spread across Cape Cod In addition to protections under local historic districts; the Cape Cod Commission Act[5] provides additional protections. Under the Cape Cod Commission Act, demolition or substantial alteration of National Register properties, whether individually listed or part of a

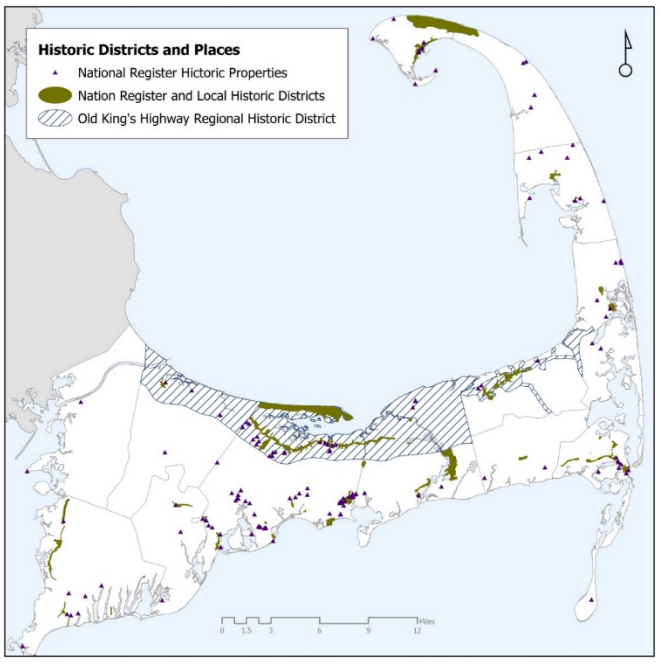


FIGURE 4. State Registered Historic Districts and Places

[3] http://mhc-macris.net/
[4] http://www.nps.gov/nr/
[5] http://www.capecodcommission.org/aboutccc/act

National Register Historic District, are subject to review by the Cape Cod Commission if there is no other historic district protection in place. In addition, there are hundreds of other historic locations across Cape Cod that have not yet been inventoried by the National Register of Historic Places.

Preservation Bylaws

- **Demolition Delay Bylaws** create time to explore alternatives to demolition of historically significant buildings. Any demolition permit request is reviewed by the Historical Commission to determine if a building is "preferably preserved" and if a delay period should be imposed. On Cape Cod, delay periods range from 6 to 18 months. See the Cape Cod Commission's Demolition Delay Network[6].
- **Overlay Districts** create special zoning regulations for unique areas. Brewster's Corridor Overlay Protection District limits the scale and massing of commercial buildings along historic Route 6A. The Village Commercial Overlay District in Harwichport allows smaller setbacks and mixed uses consistent with historic development patterns. The Cape Cod Commission's Village Development Model Bylaw[7] guides small-scale, mixed-use development in village centers. It can be established as an overlay district or as a stand-alone zoning district.
- **Archaeological Resource Districts** aim to protect archaeological sites by limiting ground disturbance in sensitive areas. The towns of Barnstable and Brewster protect historic values in their Wetland Protection Bylaws, using Massachusetts Historical Commission review to help determine if an area is likely to have archaeological significance.
- **Scenic Road Bylaws** protect trees, stone walls, and features that fall within the right-of-way of designated roads. A planning board hearing is required prior to repair, maintenance, reconstruction, or paving work if it would involve removal or cutting of trees, or destruction of stone walls within the road right-of-way. It does not address trees or walls on adjacent private property. Barnstable, Falmouth, and Sandwich coordinate their scenic road reviews with the Planning Board, Department of Public Works, Tree Warden, and Historical Commission.
- **Districts of Critical Planning Concern** are a tool created by the Cape Cod Commission Act to protect special resource areas. Towns nominate an area to the Cape Cod Commission and work with Commission staff to craft regulations that protect the district. The Designated DCPCs page[8] describes the Centerville Village, Craigville Beach, and Sandwich Three Ponds DCPC regulations to protect cultural and scenic resources.

[6] http://www.capecodcommission.org/resources/regulatory/HistoricPreservation_CCCActandNationalRegister.pdf

[7] http://www.capecodcommission.org/resources/bylaws/village.doc

[8] http://www.capecodcommission.org/departments/planning/DCPC/designated

Preservation Restrictions

Preservation Restrictions and Conservation Restrictions are legal agreements used to protect historic buildings and lands from change. The restrictions are drawn up by the property owner and a nonprofit preservation group or a government entity that is in charge of their enforcement. Restrictions can be placed on buildings or on land, and may also be used to protect archaeological resources hidden beneath the surface of the land.

The Massachusetts Historical Commission holds Preservation Restrictions on numerous Cape properties that have received preservation grant monies. Preservation Restrictions are required for some projects that use Community Preservation Act (CPA) funding, and many of these restrictions are held by conservation trusts and local historical commissions.

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CAPE COD COMMISSION

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix B: Existing Conditions

JULY 15, 2019

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Technical Appendix B: Existing Conditions

VEHICLE INFRASTRUCTURE

Roads

Travel by vehicle in Barnstable County is the primary method of transportation and can often be unique and picturesque for visitors and residents. The style of the roads and the buildings that line them are internationally recognized as Cape Cod. In certain parts of the county the historical district or town by-laws dictate the style of the road and the buildings along that road to preserve the culture of the town or city. The residents on Cape Cod have a long standing connection to the preservation of infrastructure character and natural open space. It is well known that the largest attractions in Barnstable County are the beaches; however it is the style of roadway that enhances the experience of traveling to destinations while living or visiting the region.

ROADWAY FUNCTIONAL CLASSIFICATION

Cape Cod's three major routes, Route 6, Route 28, and Route 6A, comprise only less than 6% of Cape Cod's roads by mileage. The majority (80%) of Cape Cod roads are designated as Functional Class "0/null," or local roads. 6% of roads are classified as minor or major "Collector" roadways. This means that just over two-tenths of Cape Cod's roadways are used as primary routes, while the remaining nearly eight-tenths are used to access residential and other private areas. There are no interstate highways on Cape Cod. Cape Cod's roadway functional classes are presented in the following figure.

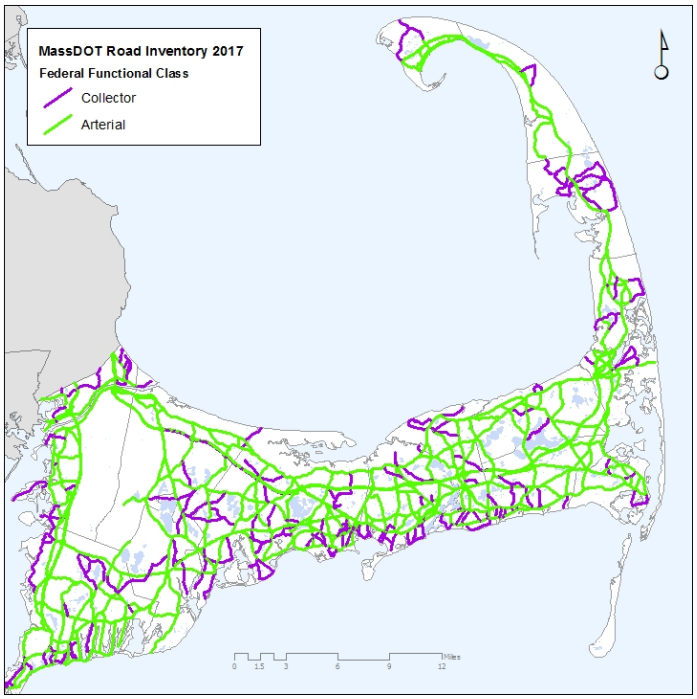


FIGURE 1. Roadway Classification

LIMITED ACCESS ROADS

Limited-access highways south/east of the Cape Cod Canal bridges are portions of either Route 6 or Route 28 and are shown in the figure below. The only limited-access portions of Route 28 are located in Bourne and Falmouth. Most of Route 28 (MacArthur Boulevard) in Bourne is partial-access control with sporadic opportunities to change direction in U-turn lanes. The majority of Cape Cod's roads do not have access control. The lack of availability of limited access routes, especially on the Outer Cape area can create congestion.

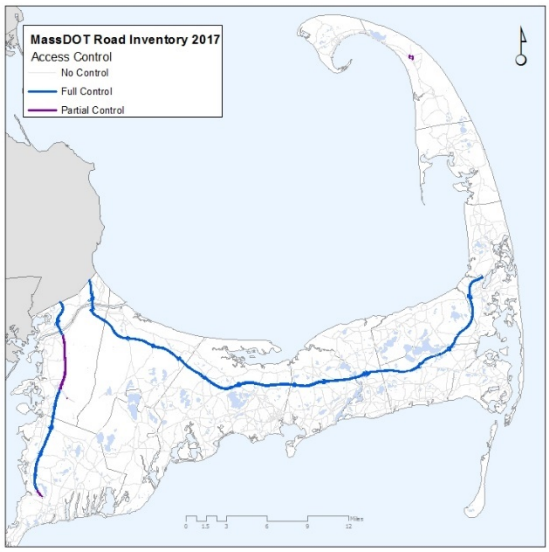


FIGURE 2. Limited Access Roads

SPEED LIMITS

The maximum legal speed limit on most Cape Cod highways is 55 mph. Exceptions include Route 3 (60 mph) and Route 25 (65 mph) in Bourne. The majority of roads that are not recognized as highways have posted speed limits below 50 mph. Exceptions include portions of Route 28 in Falmouth, Mashpee and Barnstable and Route 151 in Falmouth and Mashpee.

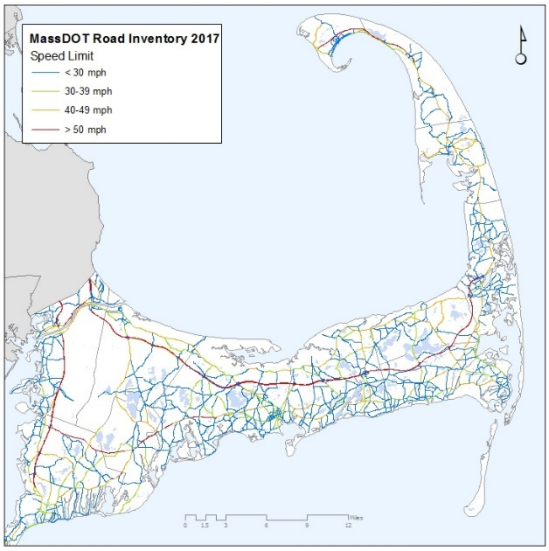


FIGURE 3. Speed Limits

INTERSECTIONS

There are thousands of roadway intersections across Cape Cod. Of these intersections, 133 are signalized and 27 are circular. Circular intersections refer to rotaries and roundabouts. Rotaries tend to be larger in diameter, and their interior travel speed is often faster than a modern roundabout. Roundabouts are identified by smaller diameters and approaches that enter at a greater angle than rotaries – encouraging slower speeds. Barnstable has five circular intersections, the most of any Cape Cod town.

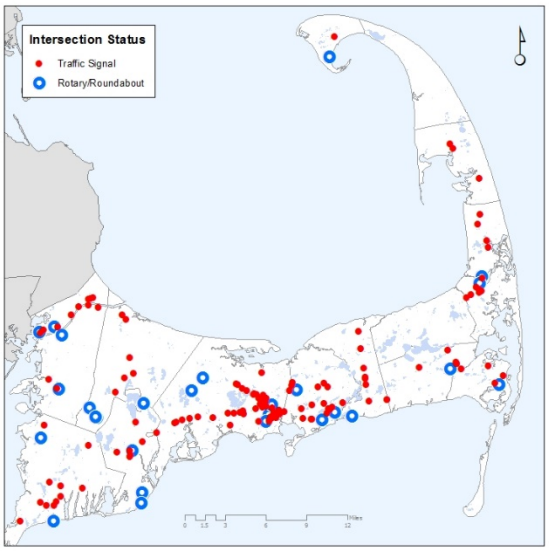


FIGURE 4. Intersections

AVERAGE ANNUAL DAILY TRAFFIC

The following figure shows year-round average daily traffic volumes on major Cape Cod roads. Heaviest travel occurs on the Cape Cod Canal road and canal bridges and the Mid-Cape Highway. High volumes of traffic are found on the roads leading to and within the Hyannis area (an area that receives/sends goods to/from many businesses, institutions such as Cape Cod Hospital and multimodal facilities such as the ferry ports). In comparison, downtown Falmouth also experiences high levels of congestion.

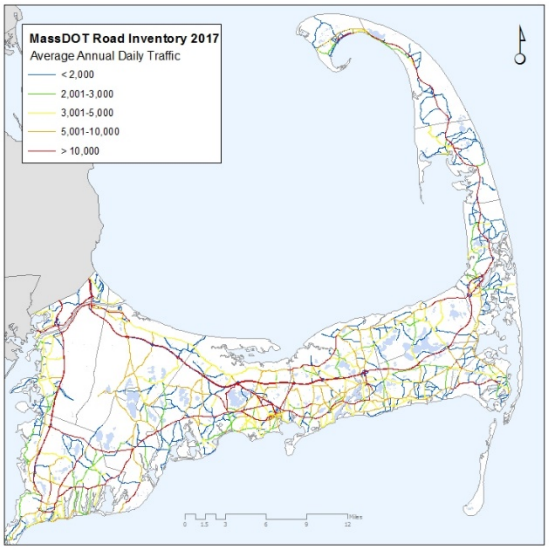


FIGURE 5. Average Annual Daily Traffic

U.S. ROUTE 6

U.S. Route 6 runs from Provincetown, Massachusetts all the way to Bishop, California, and is the longest continuous route in the United States. On Cape Cod, Route 6 is the major transportation corridor, particularly for those traveling long distances. From where it enters Barnstable County in Buzzards Bay until its end in Provincetown, it provides a primarily limited-access high-speed means of traveling along the spine of the Cape for commercial traffic. The Route 6 corridor in the Outer Cape does not have limited access. This portion of Route 6 also contains segments of the Claire Saltonstall Bikeway, or State Bicycle Route 1. During peak travel periods in the summer it is not unusual for westbound traffic to be stopped for several miles east of the Sagamore Bridge or in Wellfleet or in Dennis.

Buzzards Bay to Sagamore Bridge

From where it enters the county in Buzzards Bay to where it crosses the Cape Cod Canal at the Sagamore Bridge Route 6 is a two- to four-lane road with curb cuts on both sides. The Sagamore Rotary, located north of the Sagamore Bridge, was eliminated by 2006. This grade separated intersection provides for a direct connection between Route 3 and the Sagamore Bridge.

FIGURE 6. Route 6 from Buzzards Bay to Sagamore Bridge



Sagamore Bridge to Exit 9, Dennis

From the Sagamore Bridge to just after Exit 9 in Dennis, Route 6 is a four-lane limited-access highway with a grass shoulder and rest areas.

FIGURE 7. Route 6 from Sagamore Bridge to Exit 9



Exit 9, Dennis to Orleans Rotary

From Dennis to the Orleans/Eastham rotary the road narrows to two lanes but remains limited-access, with a raised median and yellow reflective post delineators to reduce crossovers from one direction of traffic to the other.

FIGURE 8. Route 6 From Exit 9 to Orleans



Orleans Rotary to Provincetown

Route 6 in the Outer Cape area is generally a consolidation of existing roadways over time since the 1930s. Short sections of the original Route 6 have been retained for local access for road straightening projects. In northern Truro and Provincetown, the original Route 6 became Route 6A – several sections of which have been realigned.

Finally, from the Orleans Rotary until the road's end in Provincetown the road is once again a two- to four- lane road with curb cuts on both sides, although a grassed median limits crossovers on sections of Route 6 in Provincetown.

FIGURE 9. Route 6 from Orleans Rotary to Provincetown



STATE ROUTE 28

State Route 28 begins at the New Hampshire border and joins Route 6 as it enters Barnstable County at Cohasset Narrows on the border of Bourne/Wareham. Route 28 runs for almost sixty-five miles after crossing the Cape Cod Canal and passing through villages adjacent to Buzzards Bay/Nantucket Sound/the Atlantic Ocean from Bourne to Orleans Center. Route 28 is a regional roadway but it does not provide direct inter-regional travel options in most cases. The cross section of Route 28 varies greatly throughout the Cape. However, there are three primary sections to Route 28, which are identifiable by their roadways characteristics.

Traffic flow along the corridor is generally heavy during the summer, with gridlock occurring in many locations. However, the level of traffic varies greatly along the corridor. Much of the Route 28 corridor is congested during summer peak hours. Some sections, such as in Hyannis and Falmouth, can experience congestion year-round.

Buzzards Bay to Bourne Rotary

Route 28 consists of four lanes from the county line across the Bourne Bridge to the Bourne Rotary.

Bourne Rotary to Palmer Avenue, Falmouth

Route 28 consists of four lanes, divided by a grassy median, from the Bourne Rotary to Saconesset Hills in Falmouth. The western side of Route 28 in Bourne from the Bourne Rotary to the Otis Rotary (MacArthur Boulevard) allows property access. Vehicles can reverse direction via a number of U-turn areas in the median.

FIGURE 10. Route 28 from Bourne rotary to Palmer Avenue



Palmer Avenue, Falmouth to Orleans Rotary

From Palmer Avenue in Falmouth, Route 28 is predominately two lanes to the intersection of Old Stage Road in Barnstable. Route 28 then transitions to four Lanes from Old Stage Road to Phinneys Lane in Barnstable and then predominately is two lanes from Phinneys Lane to the Orleans/Eastham Rotary. Portions of this route are more developed than others. The most developed and subject to congestion area is Hyannis. Congestion in this area is experienced year-round.

FIGURE 11. Route 28 in Yarmouth



ROUTE 6A

Route 6A on Cape Cod is one of the oldest travel corridors in the country. Originally a path used by Native Americans, it was later adopted by colonists for travel from Plymouth out to Eastham. Later it served as state Route 6 until the construction of the current Route 6 in the 1950s. Today it serves much of the Old Kings Highway Historic District and is designated as a state Scenic Byway.

FIGURE 12. Route 6A Corridor



Route 6A is a narrow and windy two lane road with little or no shoulder. One exception to this is the four-lane cross section in Orleans (which is not included in the Old Kings Highway Historic District). Because of the narrow shoulders, passing zones are limited and biking can be difficult. There are not any rest areas located on this corridor. Traffic congestion along the corridor is generally heavy during the summer however; the level of traffic varies greatly along the corridor.

Much of the Route 6A corridor is congested during summer peak hours. Recommendations from the Route 6A Corridor Management Plan (Cape Cod Commission, 2010) include the reduction of speed limits to 35 MPH and accommodation of alternate mode users such as pedestrians, bicyclists and public transportation users.

Bridges

CAPE COD CANAL BRIDGES

The largest bottlenecks on Cape Cod occur at the canal bridges during the summer season. Cape Cod's bridges serve many important functions, one of which is to permit travel over waterways by automobile and along waterways by boat or barge, between Buzzards Bay and Cape Cod Bay. The Bourne Bridge and Sagamore Bridge permit vehicular travel over the Cape Cod Canal. If not for the canal bridges, vehicles would have to use a ferry to reach Cape Cod. Summer time delays at the canal bridges can sometimes be measured in hours.

FIGURE 13. Congestion at the Bourne Bridge



The Bourne Bridge and Sagamore Bridge are both under the jurisdiction of the Army Corp of Engineers (ACOE). One or the other of the two highway bridges may have restrictions on lanes and heavy vehicles during several weeks of the year to accommodate painting and structural maintenance activities. While avoiding the heavy summer traffic season, these lane closures have been observed to result in traffic backups of several hours.

The Bourne and Sagamore bridges provide the only crossings of the Cape Cod Canal for motorists, pedestrians and cyclists. Maintained by the U.S. Army Corps of Engineers, the geometric design of each bridge includes a roadway width of 40 feet (four 10 foot wide lanes) flanked by a 6-foot wide sidewalk on one side and a 2-foot wide safety curb on the other. The roadways are separated from the sidewalks and safety curbs by 16-inch high vertical granite curbing.

The bridges first opened to traffic in 1935. Historic records indicate a general upward trend in the annual bridge crossings and this traffic is currently approaching 100,000 vehicles per average day. Over the decades, the bridges have been exposed to deicing salts, the effects of which include progressive deterioration of the concrete deck and some steel members of the bridges. These effects are compounded by the fact that the bridges are located near salt water. An additional maintenance activity is the periodic painting of the exposed steel portions of the bridges.

For certain maintenance activities, including repairs to the concrete deck, the worksite requires the closures of two lanes. For a bridge undergoing maintenance, the four lanes are reduced to two. Depending on the duration of the closure and the seasonal demand, significant delays and backups may occur. The ACOE is committed to minimizing these conditions by avoiding daytime lane reductions during the summer months and limiting work to one bridge at a time.

Bridge condition information, provided by MassDOT is presented in Appendix P: Statewide Tables.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) is an emerging aspect of infrastructure that has surfaced on Cape Cod. Along Route 6, permeant message boards display travel time to exits on the roadway. This information calculated using Bluetooth technology to calculate drive times. This information has been effective at reducing distraction and driver confusion by presenting valuable information to automobile drivers outside of content received by cellphones or GPS devices. The project began in 2012 with signage installed on Route 3 approaching Cape Cod and plans to be statewide in 2015.

FIGURE 14. Travel Time ITS



A second source of Intelligent Transportation Systems on Cape Cod is the use of remote counting stations. Currently there are seven stations maintained by MassDOT including Sagamore Bridge, Bourne Bridge, Route 6 East of Exit 5 in Barnstable, Route 3 at the Bourne/Plymouth Town Line, Route 28 East of Higgins Crowell Road in Yarmouth, Route 28 West of Old Post Road in Barnstable, and Route 28 north of the Otis Rotary in Bourne. A counter at Route 28 East of Main Street Cotuit in Barnstable was maintained by MassDOT but was discontinued several years ago. In addition to the MassDOT devices, the Cape Cod Commission Maintains three permanent counters at Route 137 at Route 39 in Harwich, Route124 at Queen Anne Road in Harwich, and Route 28 at Lumbert Mill Road in Barnstable. Each of these counting stations count vehicles using detectors installed in the pavement. Similar technologies use cameras to count cars, but this is not practiced on Cape Cod. This information is useful to planners in reflecting traffic patterns throughout the year and could redefine seasonal factors used in design, improve signal optimization or affect the priority of regional projects.

Other technologies that are emerging or integrated include assisted diving cars or signal priority for emergency vehicles. As new technologies their acceptance into infrastructure is changing the way people travel. Intelligent transportation systems in development or in practice nationally that have not been integrated on Cape Cod include infrastructure to support driverless cars, pavement that is responsive to weather changes, and signal priority for transit.

BUS INFRASTRUCTURE

Intermodal Facilities

HYANNIS TRANSPORTATION CENTER

The Hyannis Transportation Center was built in 2002 as a hub for Cape Cod's transportation needs. The property has entrances from Route 28, Center Street, and Ridgewood Avenue. The facility includes a bus terminal and a connection to the Cape Cod Central Railroad terminal. Additionally, there is parking space available for 220 cars on an eight-acre lot.

FIGURE 15. Hyannis Transportation Center



The building itself is owned and operated by the Cape Cod Regional Transit Authority (CCRTA). The Hyannis Transportation is open 7 days a week, excepting holidays, from early morning to 8:30pm. Inside, travelers are offered several amenities, such as Wi-Fi internet, vending machines, an ATM, and restrooms. Electronic route maps are posted throughout the facility and announcements of arrivals and departures are made over the loud speaker system. Additional travel information is available at the information desk.

The Hyannis Transportation Center brings together local and interregional bus services, rail facilities, and connections to air and ferry service. Plymouth and Brockton, Peter Pan, and Bonanza Bus lines all make daily use of the bus terminal facilities. Four RTA bus lines make stops at the Hyannis Transportation Center, as well as two RTA shuttles. These transit lines provide connections to ferry service in Hyannis and air service and rental car service at Barnstable Municipal Airport. Plymouth and Brockton service from Boston and Provincetown, and Peter Pan service from Providence and New York make stops at the Hyannis Transportation Center. There is also an area designated for Taxi service pick-up and drop-off. Nearby ferry service to Martha's Vineyard and Nantucket is accessible by local transit. Given the variety of transportation options available, the Hyannis Transportation Center is sometimes also referred to as the Hyannis Intermodal Center.

In addition the Hyannis Transportation Center, several other locations serve as bus terminals and stops throughout Cape Cod.

MACMILLAN PIER AND BUS DEPOT

MacMillan Pier in Provincetown is located at the intersection of Commercial Street and Ryder Street. The facility is open Monday through Saturday from 9am to 6pm and is closed on Sundays and holidays. MacMillan Pier includes a bus depot, ferry terminal, and a parking facility open seven days a week. The bus depot serves as a terminal for Plymouth and Brockton service from Hyannis and Boston. The Cape Cod Regional Transportation Authority's (CCRTA) seasonal Provincetown Shuttle makes scheduled stops at the facility on its way to Race Point, Provincetown Municipal Airport and North Truro. Ferry service to Plymouth and Boston is also available seasonally.

FIGURE 16. Macmillan Pier



MacMillan Pier is located in the heart of downtown Provincetown, with access to restaurants, hotels and shopping.

FALMOUTH BUS DEPOT

The Falmouth Bus Depot is located on Depot Avenue in Falmouth. The building itself used to be a railway station. After rail service to Woods Hole was suspended, the building was converted into a bus terminal. The facility is open 7 days a week, excepting holidays, from 5am to 5pm. Limited parking is available. The Falmouth Bus Depot serves as a destination for local transit and interregional bus service, and provides connections to various ferry terminals. Peter Pan service from Boston to Woods Hole stops at the Falmouth Bus Depot. Additionally, the RTA's Hyannis-Falmouth SeaLine service and the seasonal WHOOSH Trolley will make stops at the Bus Depot. These transit services provide connections to the ferry terminals at Woods Hole and Falmouth Marina. Beyond the available transit services, the Shining Sea Bike Path is located next to the depot along the former rail right-of-way. Given its proximity to downtown, the Falmouth Bus Depot also provides access to restaurants, hotels and shopping.

WOODS HOLE STEAMSHIP AUTHORITY PIERS

The Steamship Authority piers in Woods Hole are also used as a bus terminal. Across from the ferry terminal is a small Peter Pan ticket facility and place for buses to pick-up and drop-off. Peter Pan buses continue from the Steamship Authority Piers to Boston. Due to the demand for ferry service, parking for the bus terminal is extremely limited. Travelers using the bus terminal can make use of amenities at the ferry terminal including restrooms, and food services. Additionally, the Shining Sea Bikepath terminates at the Steamship Authority Pier, providing bicycle access to downtown Falmouth and points north. Nearby Wood Hole offers restaurants, hotels and shopping.

FIGURE 17. Woods Hole Steamship Authority Piers



TEDESCHI FOOD SHOP IN BOURNE

Tedeschi Food Shop on Trowbridge Road in Bourne also serves as a stop for interregional bus service. The location was selected due to its proximity to the Bourne Bridge and Route 25. Peter Pan makes stops at Tedeschi on its route from Boston to Woods Hole and on its route from

Providence to Hyannis. Tickets can be purchased inside Tedeschi and a portion of their parking lot is available for commuters.

SAGAMORE PARK-AND-RIDE LOT

The Sagamore Park-and-Ride Lot is owned by MassDOT located by Interchange 1a in Bourne, near Routes 3 and 6. In early 2009, the lot was been expanded to a total of 396. Sagamore Park-and-Ride Lot is accessed by Plymouth and Brockton on its Boston to Hyannis route. In this way it serves as a commuter stop for those traveling to work in Boston, Logan International Airport and other points north.

FIGURE 18. Sagamore Park-and-Ride Lot



BARNSTABLE PARK-AND-RIDE LOT

The Barnstable Park-and-Ride Lot is a MassDOT owned facility located off Exit 6 of Route 6 in Barnstable. The lot was expanded to 365 parking spaces in August 2001. As part of the expansion, two new shelters were installed and currently appear to be in good condition. This lot has a ramp directly onto Route 6 westbound, making it convenient for motorists and buses. The Exit 6 facility is adjacent to amenities such as restrooms, food service, a convenience store, ATMs, fuel, and a seating area. The Barnstable Mobil Mart located inside is open 24 hours and sells tickets for interregional bus service. The Barnstable Park-and-Ride Lot is used as a stop for the Plymouth and Brockton route from Hyannis to Boston and for the Peter Pan route from Hyannis to Providence. The CCRTA's Barnstable Villager service provides local bus service to the Route 132 entrance to the Park-and-Ride lot, with connections to Barnstable Village, Route 132, and Hyannis.

FIGURE 19. Barnstable Park-And-Ride Lot



HARWICH PARK-AND-RIDE LOT

The Harwich Park-and-Ride Lot is a MassDOT owned facility located off Exit 10 of Route 6 on Route 124. The lot has 75 parking spaces. The lot is available as a stop (on-demand) for the CCRTA's Flex Service.

HYANNIS PARK-AND-RIDE LOT

The Hyannis Park-and-Ride Lot is located at the Hyannis Transportation Center. There is room for 225 vehicles. Long-term parking (over 30 minutes) is officially available on a pay-basis. The lot has access to all of the bus services and user amenities at the Hyannis Transportation Center.

PARK-AND-RIDE LOT USAGE

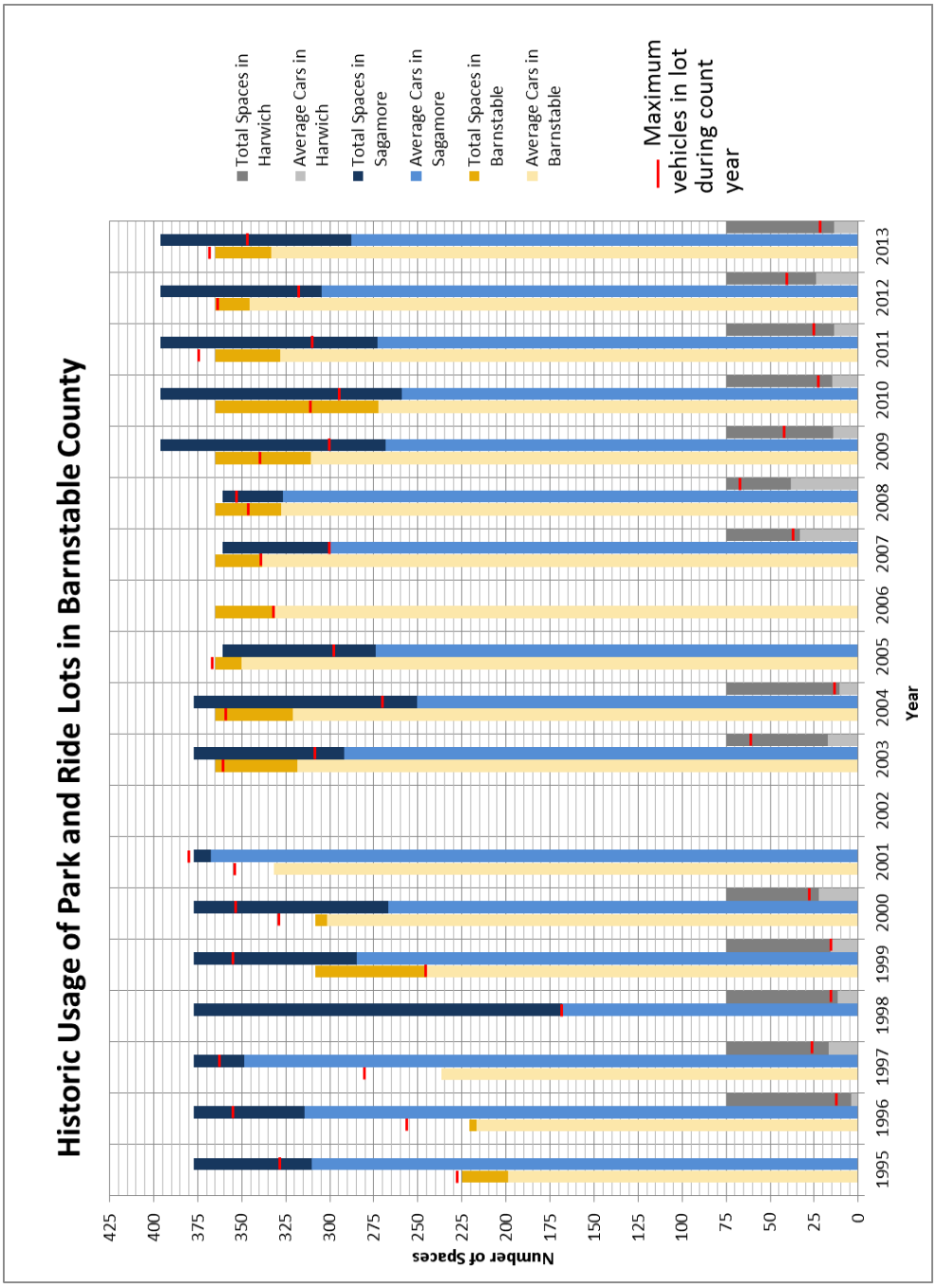
Data collected at Park-and-Ride locations are organized in the figure below to show the capacity, average occupancy, and maximum occupancy for each of the lots from 1995-2013. The dark shaded bar graphs represent the capacity of each lot. The capacity has historically changed at the Barnstable and Sagamore Locations due to construction. The Barnstable location has grown from 225 spaces to 365 spaces from 1995-2013. The Sagamore Lot was reduced in 2005 due to the reconstruction of bridge access and then expanded in 2009 to accommodate 378 vehicles.

The average occupancy for each lot is shown by the lighter color on the bars. These data were collected in various samples during the summer months and shows inconsistent trends when comparing the data. The average occupancy does show that the Harwich lot averages fewer than 50 percent capacity for each year despite the removal of commuter bus service.

The maximum occupancy is shown by the red line located on or above the bar. A line located on the bar indicates that observations did not find a lot exceeding the capacity. A line located above the bar indicates that the lot did on occasion exceed capacity. Exceeding capacity would result in

illegally parked cars. It can be noted that the Barnstable lot exceeded capacity 2011 and 2013, 2012 was observed at maximum capacity but not exceeding. The Sagamore Lot has not been observed to exceed capacity in the last ten years.

FIGURE 20. Historic Park-and-Ride Usage Data



Interregional Bus Service

Interregional bus service transports travelers to and from Cape Cod. Some examples are bus service from Hyannis to New York City, or Boston to Provincetown. Users of interregional bus service include commuters who work in Boston, Logan Airport users, and those traveling or vacationing. Two bus companies serve Cape Cod's interregional service needs.

PLYMOUTH AND BROCKTON STREET RAILWAY COMPANY

The Plymouth and Brockton Street Railway (P&B) was established in 1888, as a local service provider for the area. According to P&B, electric trolley cars carried passengers to and from work, and on weekend "joy rides." Following World War I, street railway tracks were abandoned and replaced by motor coaches throughout the South Shore. Plymouth and Brockton's final electric trolley run was made on June 28, 1928 between Jabez Corner and Kingston. The company was purchased by the Anzuoni family in 1948, who continue to operate and manage the Plymouth and Brockton Street Railway to this day. P&B serves 25 cities and towns from Boston to Cape Cod and is partially subsidized by the Massachusetts Bay Transportation Authority (MBTA), MassPort, and the Cape Cod Regional Transit Authority (CCRTA).

FIGURE 21. Plymouth and Brockton Bus



Current Plymouth and Brockton service stretches from Logan International Airport to Provincetown. There are two primary routes. The first route is between Hyannis and Provincetown. This route is operated 4 times daily in both directions during the summer. The bus makes several stops along the Outer Cape route as shown in the table below.

TABLE 1. Plymouth and Brockton Outer Cape Bus Stops

STOP NAME	LOCATIONS
Hyannis	Hyannis Transportation Center
Harwich	Harwich Park-and-Ride Lot
Orleans	CVS @ Main St. & Route 6A
Eastham	Town Hall @ Rt. 6 and Samoset Rd.
North Eastham	Village Green @ Rt. 6 and Brackett Rd.
South Wellfleet	Farrell's Market, Rt. 6
Wellfleet	Town Hall, Main St.
Truro	Post Office and Jam's Store, Route 6A
North Truro	Dutra's Market, Route 6A

The second route is between Hyannis and points in Boston. Stops in Boston include Logan International Airport, Park Square & 200 Stuart Street, and South Station Transportation Center. In addition, several stops are made along the way both on and off Cape (See Table below). Buses terminate in Boston at Park Plaza, Logan Airport, and most frequently South Station. Total operations are reduced during the fall and winter to reflect the lower demand for travel.

TABLE 2. Plymouth and Brockton Commuter Bus Stops

STOP NAME	LOCATIONS
Hyannis	Hyannis Transportation Center
Barnstable	Barnstable Park-and-Ride Lot
Sagamore	Sagamore Park-and-Ride Lot
Plymouth	Rt. 3 Exit 5 Info Center Park-and-Ride Lot
Rockland	Rt. 3 & Rt. 228 Park-and-Ride Lot
Boston	South Station Transportation Center
Boston	Park Square & 200 Stuart Street
Boston	Logan International Airport

PETER PAN AND BONANZA BUS LINES

Bonanza Bus Lines was founded in 1955. Service to Hyannis was added in 1958. By 1965, the "Short Line," as it was then called, had service to Boston, New Bedford, Springfield, and beyond. Bonanza became the largest independent bus line in New England in 1974 when it began service

from Hartford, CT to New York City. Service from Boston to Woods Hole, with connections to ferry service, began in 1978. After merging with Coach USA in 1998, the company was purchased by Peter Pan Bus Lines in 2003, along with three other New England affiliates of Coach USA. Additionally, Peter Pan has partnered with Trailways to provide ticketing services, more connections and increased service. Currently, the Peter Pan Bus Lines network includes a 1,560-mile route system serving New England and beyond.

FIGURE 22. Peter Pan Bus



Peter Pan and Bonanza Bus Lines provide three routes serving Cape Cod. The first route is between Woods Hole and Boston. Stops are made in Falmouth and Bourne. Service may be reduced in the winter to reflect reduced demand.

TABLE 3. Peter Pan Woods Hole to Boston

STOP NAME	LOCATIONS
Woods Hole	Steamship Authority Piers
Falmouth	Falmouth Bus Depot, Depot Ave.
Bourne	Tedeschi's Food Shop, Trowbridge Rd.
Boston	South Station Transportation Center

The second route run by Peter Pan and Bonanza on Cape Cod is the Hyannis to Providence, RI bus. Six round trips are made daily in the summer. Stops are made in Barnstable, Bourne, New Bedford, Fall River, and Providence. Service may be reduced in the winter in order to accommodate demand. Connections can be made at a number of stops along each route.

TABLE 4. Peter Pan Hyannis to Providence

STOP NAME	LOCATIONS
Hyannis	Hyannis Transportation Center
Barnstable	Barnstable Park-and-Ride Lot
Bourne	Tedeschi's Food Shop, Trowbridge Rd.
New Bedford	SRTA Terminal, Elm Street
Fall River	SRTA Terminal, Second Street
Providence	Bonanza Bus Terminal
Providence	Kennedy Plaza

A third recently added route by Peter Pan and Bonanza on Cape Cod is the Hyannis to Boson/Logan Airport bus. Nine round trips are made daily. Stops are made in Barnstable, Bourne and Boston.

TABLE 5. Peter Pan Hyannis to Boston

STOP NAME	LOCATIONS
Hyannis	Hyannis Transportation Center
Hyannis	Barnstable Municipal Airport
Barnstable	Barnstable Park-and-Ride Lot
Sagamore	Sagamore Park-and-Ride Lot
Boston	South Station
Boston	Logan Airport

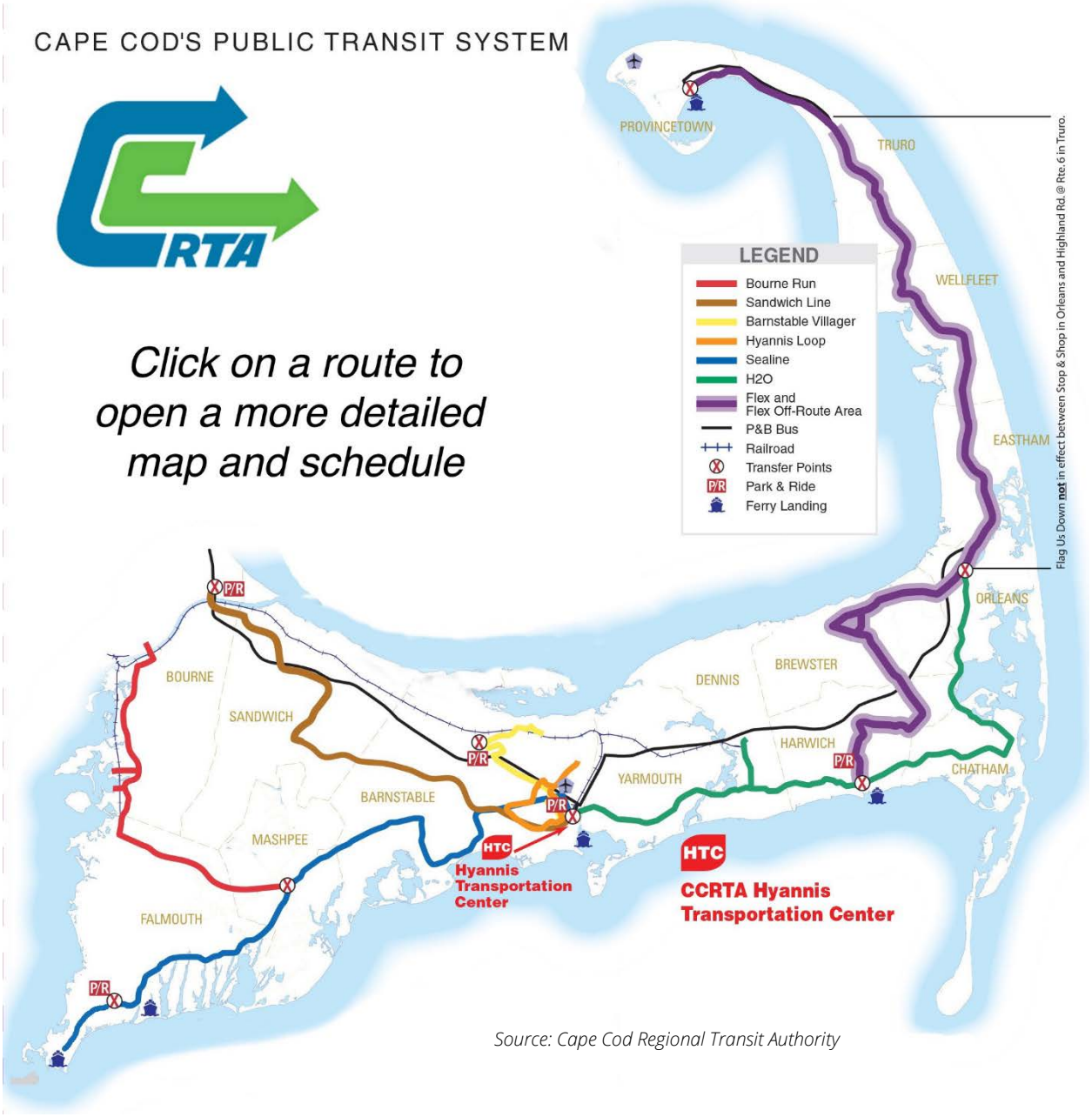
Cape Cod Regional Transit Authority

The Cape Cod Regional Transit Authority (CCRTA) is the agency in charge of operating and maintaining public transit services on Cape Cod. The CCRTA is an independent public agency, governed by a board of directors. The 15 Cape Cod towns each appoint one board member to represent their interests in the CCRTA. The CCRTA offers several types of services, including Fixed Route service, Flexible Route service, and Demand Response or Paratransit service. Some Paratransit and Demand Response services are not operated directly by the CCRTA, but are contracted.

FIXED ROUTE BUS SERVICE

Fixed Route bus service is the traditional form of transit. Vehicles follow specific routes and stop at designated areas. Fixed Route service on Cape Cod is slightly different, in that CCRTA buses (with the exception of the Flex) stop anywhere along their route when flagged. All CCRTA fixed route buses have bicycle racks, designed to carry two bicycles. In addition, all fixed route buses are wheelchair accessible and equipped with low floors, ramps or lifts. Service animals are the only animals allowed to board the buses.

FIGURE 23. Cape Cod Regional Transit Authority System Map



Source: Cape Cod Regional Transit Authority

Hyannis-Falmouth Service: "SeaLine"

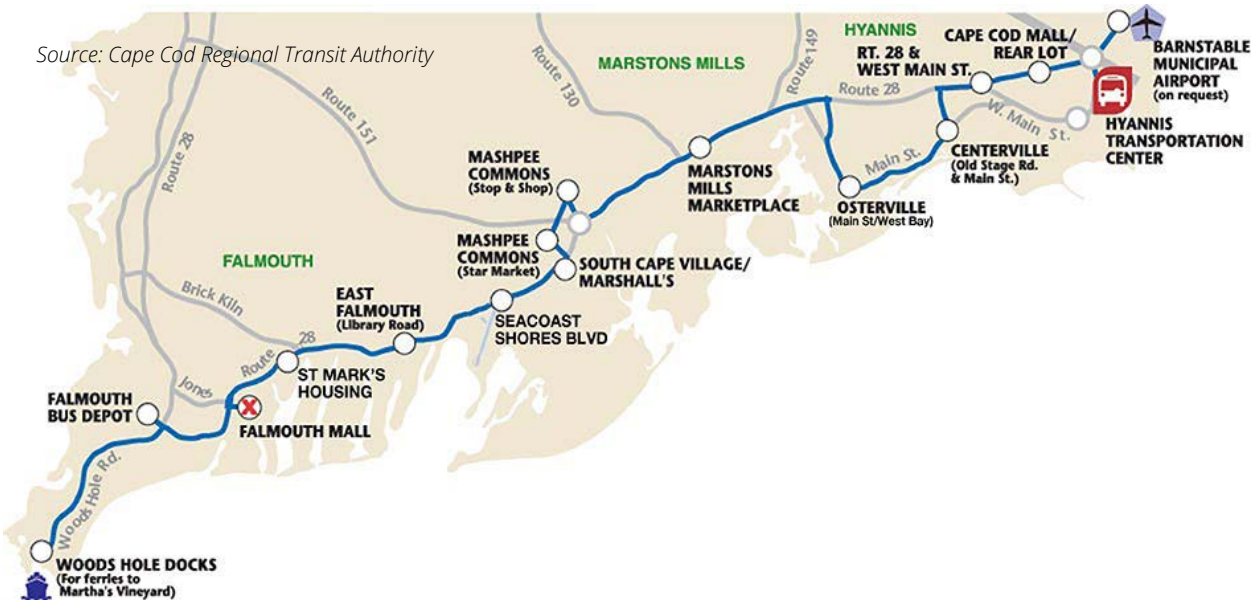


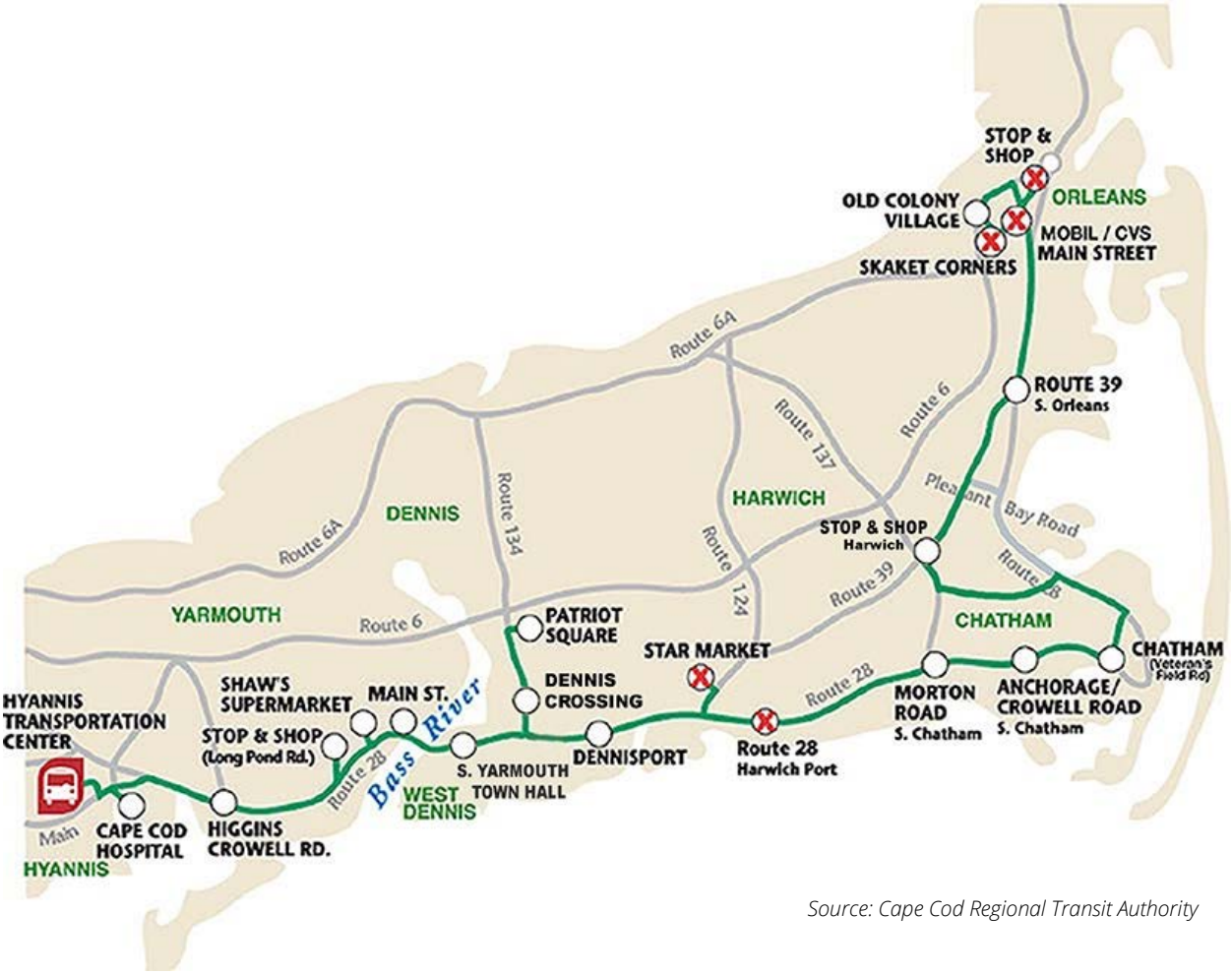
FIGURE 24. CCRTA Sealine Map

The Hyannis-Falmouth service known as the SeaLine runs from the Hyannis Transportation Center to Woods Hole mostly on Route 28. Passengers can board the bus at any of the 18 designated stops, or flag the driver anywhere along the route to stop. The SeaLine operates round trips beginning at 5:30am and ending at 9:38 pm. Some of the round trips feature stops that others do not and the number of trips are increased in the summer. Buses are scheduled to run every 60 minutes, with a complete one-way trip taking 1 ½ hour. During the summer months service operates 7 days per week. Outside of the summer months service operates Monday through Saturdays. Service may be reduced during the winter in order to reflect lower demand. The first two trips, made before 8:00am, skip the Centerville and Osterville stops, continuing straight down Route 28, and ending at the Steamship Authority Docks in Woods Hole. The SeaLine will also stop at the Barnstable Municipal Airport upon request. The SeaLine connects to the WHOOSH Trolley in Woods Hole and to most other lines at the Hyannis Transportation Center.

Hyannis-Orleans Service: "H2O"

The Hyannis-Orleans service, also known as the H2O Line, runs from the Hyannis Transportation Center to the Stop and Shop on Routes 28/6A in Orleans. Passengers can board the bus at any of the 21 designated stops, or flag the driver anywhere along the route to stop. The H2O operates round trips beginning at 5:45 am and ending at 9:40 pm. Buses are scheduled to run about every hour, with the complete one-way trip taking 1 hour and 50 minutes. During the summer months the H2O operates seven days per week including holidays. Outside of the summer months the H2O operates Monday through Saturday. Service may be reduced during the winter in order to reflect lower demand. Passengers riding the H2O can transfer to the Flex at four locations indicated by a red X on the map above in Harwichport and Orleans, and to most other lines at the Hyannis Transportation Center.

FIGURE 25. CCRTA H2O Line Map

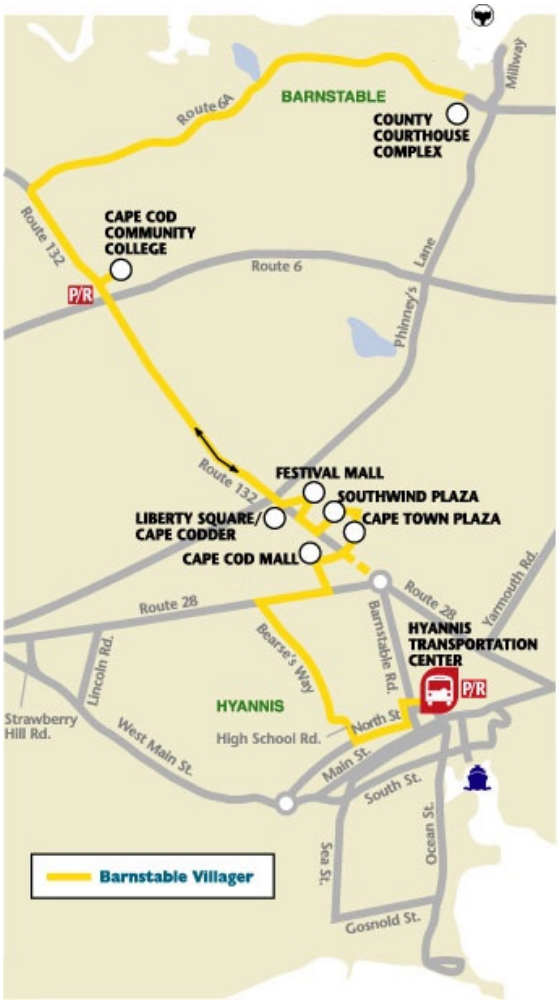


Source: Cape Cod Regional Transit Authority

Barnstable Villager

The Barnstable Villager service runs from the Hyannis Transportation Center to the Barnstable County Complex on Route 6A and Barnstable Harbor. Passengers can board the bus at any of the designated stops, or flag the driver anywhere along the route to stop. The Barnstable Villager makes round trips, beginning at 7:30am and ending at 6:35pm. Buses are scheduled to run every hour, with the complete one-way trip scheduled to take 45 minutes. During the Summer Months the Villager operates seven days per week. Outside of the summer months service is offered Monday through Saturday. Service may be reduced during the winter in order to accommodate lower demand. The Barnstable Villager will stop at the Barnstable Municipal Airport upon request. Passengers riding the Villager can transfer to most other lines at the Hyannis Transportation Center as well as have an option for several express trips to Patriot's Square in Dennis in the afternoon.

FIGURE 26. CCRTA Barnstable Villager Map



Source: Cape Cod Regional Transit Authority

Flexible Route Bus Service: "the Flex"

The Flex stretches from Harwichport to Provincetown. Along this route, the Flex picks up passengers at any of the designated stops. Of the designated stops, some are "Main Stops." This means that the Flex bus always makes a stop, usually within five minutes of schedule. The remaining stops are "In-Between Stops," and the Flex only stops when a passenger is waiting, or to drop off a passenger by request. The time of these stops vary. In addition to the "Main Stops" and "In-Between Stops" passengers may flag the bus down along the main route, with the exception of portions along Route 6.

FIGURE 27. CCRTA Flex Map



Source: Cape Cod Regional Transit Authority

The bus can also "flex" off its route up to ¾ of a mile to pick up passengers who cannot reach a regular stop. Users must call the RTA at least two hours in advance in order to schedule a Flex bus pick up or drop off. The fare for a one-way "off-route trip" is $4. TTY service is available for the deaf or hearing impaired.

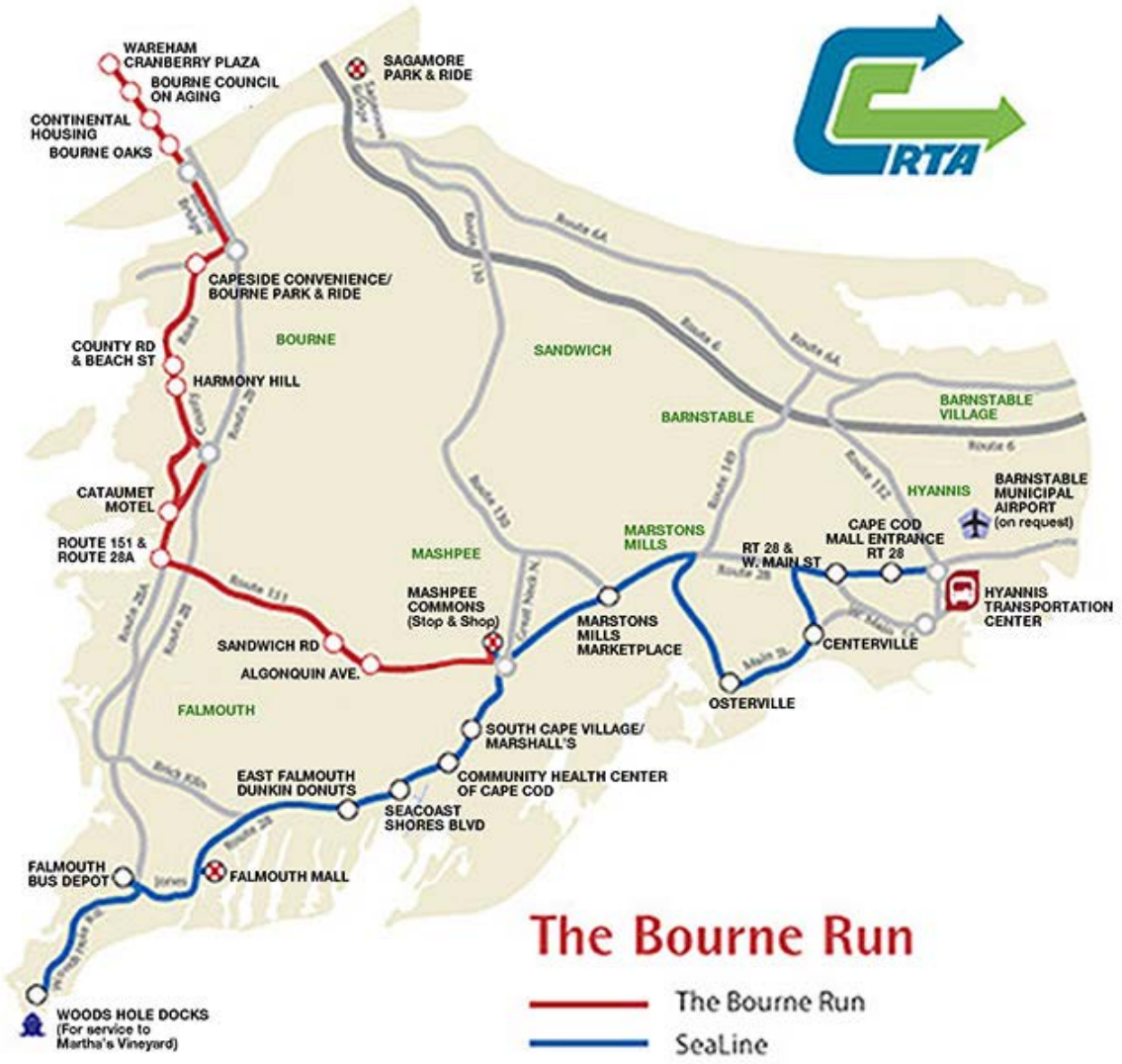
Each bus has bio-diesel capability. Low floors and hydraulic drops provide accessibility to disabled users. Bicycle racks on the front of the Flex bus can carry up to two bicycles.

Buses are scheduled to run every seven times a day in each direction with additional service in the summer. A one-way trip takes about 2 hours and 15 minutes. Service is available Monday through Saturdays. Service may be reduced during the winter in order to reflect lower demand. Transfers are available to the Hyannis-Orleans Breeze and Plymouth and Brockton service.

Bourne Route

The Bourne Run operates from the Mashpee Commons to the Cranberry Plaza in Wareham. Passengers can board the bus at any of the designated stops, or flag the driver anywhere along the route to stop. Buses are scheduled to run about every hour and a half, with the complete one-way trip taking 1 hour and 15 minutes. The Bourne Run operates Monday through Friday. Service may be reduced during the winter in order to reflect lower demand. Passengers riding the Bourne Run can transfer to the Sealine at the location indicated by a red X on the map above in Mashpee, and to intercity buses in Buzzards Bay.

FIGURE 28. CCRTA Bourne Run Map

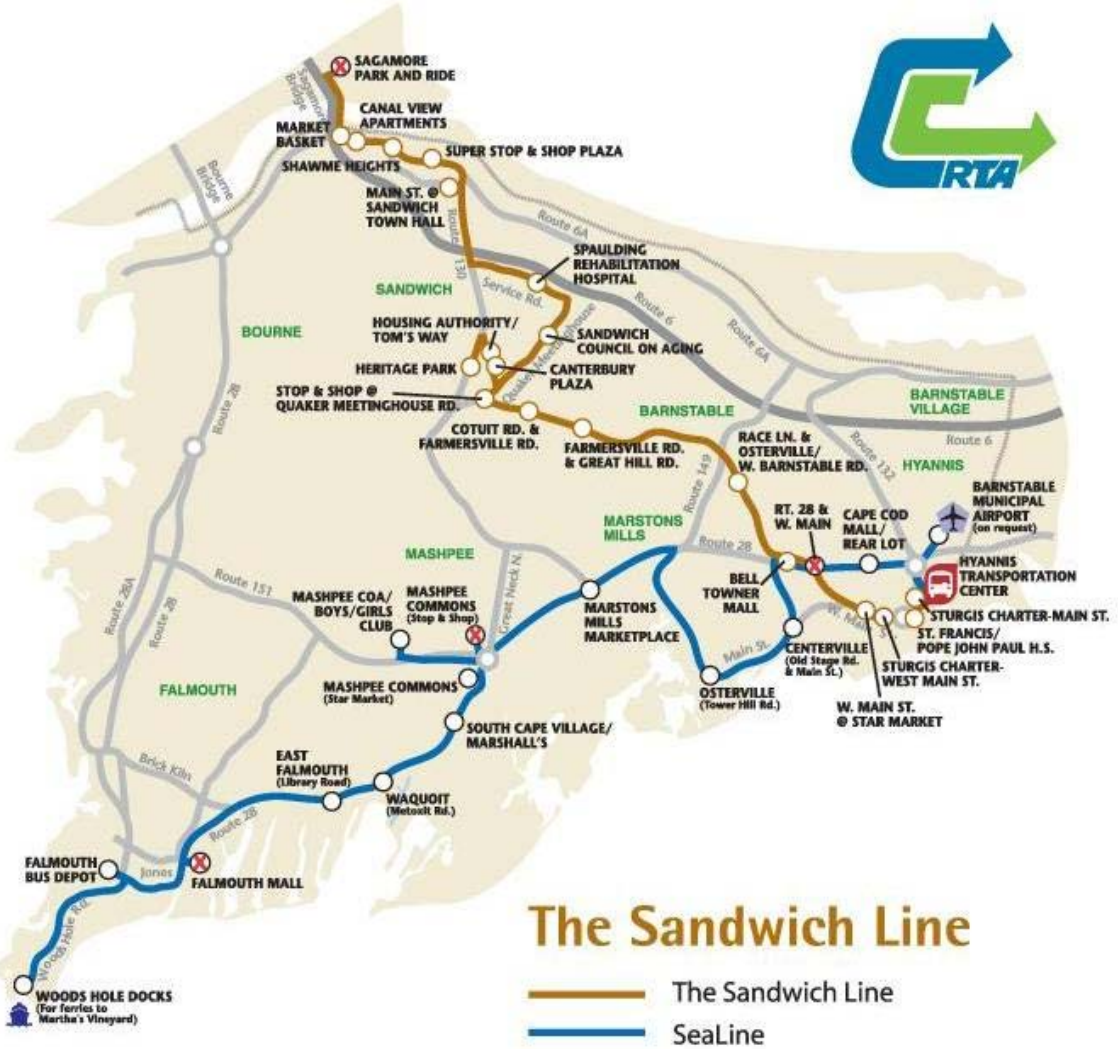


Source: Cape Cod Regional Transit Authority

Sandwich Line

The Sandwich Line operates from the Hyannis Transportation Center to Park-and-Ride Lot in Sagamore. Passengers can board the bus at any of the designated stops, or flag the driver anywhere along the route to stop. Buses are scheduled to run about seven times a day in each direction with more service during the summer. A complete one-way trip takes about 1 hour and 15 minutes. The Sandwich Line operates Monday through Friday. Service may be reduced during the winter in order to reflect lower demand. Passengers riding the Sandwich Line can transfer to the Sealine at the location indicated by a red X on the map above in Barnstable, and to other CCRTA routes and intercity buses in Buzzards Bay.

FIGURE 29. CCRTA Sandwich Line Map

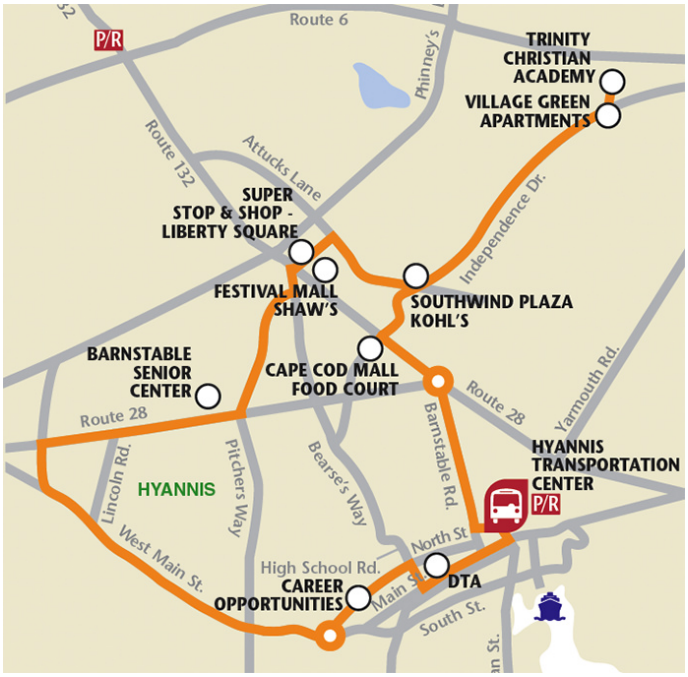


Source: Cape Cod Regional Transit Authority

Hyannis Loop

The Hyannis Loop operates Monday-Saturday from at 7am to 5:50 pm with extended hours to 10:35 pm on Friday and Saturday. The Hyannis Loop connects at the Hyannis Transportation Center with several other services. Loop service travels in both directions hourly and each round trip takes about 50 minutes. Passengers can board the bus at any of the designated stops, or flag the driver anywhere along the route to stop.

FIGURE 30. Hyannis Loop Map



Source: Cape Cod Regional Transit Authority

SEASONAL SERVICES

Hyannis Trolley

The Hyannis Shuttle is the summer service from the Hyannis Transportation Center to several beaches in the Hyannis area. Passengers can board the bus at any of the designated stops, or flag the driver anywhere along the route to stop. The Hyannis Shuttle makes round trips, beginning at 10:00am and ending at 9:15pm. Buses operate 7 days per week including holidays starting late June and continuing through Labor Day. Passengers riding the Hyannis Shuttle can transfer to most other lines at the Hyannis Transportation Center.

FIGURE 31. CCRTA Hyannis Shuttle



Source: Cape Cod Regional Transit Authority

Provincetown/Truro Shuttle

The Shuttle serves Downtown Provincetown, Provincetown Airport, Race Point Beach, Herring Cove Beach, and North Truro. The Shuttle operates on a reduced schedule from 7:am to 12:30am Monday through Saturday and from 7:00am to 8:00pm on Sunday from Memorial Day to mid-June. During the summer, shuttles run every 30 minutes, between 7:00am and 12:30am seven days per week, including holidays. Passengers riding the Shuttle may board at designated stops or flag the bus down at any location along its route. Passengers also are able to transfer to the Flex bus for free at Dutra's Market in North Truro.

FIGURE 32. CCRTA Provincetown/Truro Shuttle



Source: Cape Cod Regional Transit Authority

The WHOOSH Trolley

During summer months, the WHOOSH Trolley, or the Woods Hole Trolley, runs from the Falmouth Mall to the Steamship Authority Docks in Woods Hole. Passengers can board the bus at any of the designated stops, or flag the driver anywhere along the route to stop. During the summer, the WHOOSH Trolley operates between 9:45am and 8:05pm seven days a week with extended service on Friday and Saturday. Transfers are available to the Sealine at the Falmouth Mall.

FIGURE 33. CCRTA Woosh Trolley



Source: Cape Cod Regional Transit Authority

DEMAND RESPONSE BUS SERVICE

Demand response bus service addresses the needs of passengers who cannot use standard transit services. Demand response buses do not use a route system, but instead pick up passengers at scheduled locations and times, often at their homes or offices, as requested.

Dial-A-Ride Transportation (DART)

The DART service is a demand response service that operates year round, seven days a week, with the exception of some holidays. In order to use the service, passengers must call the RTA at least one day in advance during normal business hours to schedule a pick up and drop off. If multiple passengers are being picked up or dropped off in the same location their trips will be grouped. For this reason, users must be flexible with their pick up and drop off times. If passengers do not show for a requested trip they are considered a "No-Show" and are subject to restrictions when scheduling their next trip. Repeat "No-Shows" could result in the loss of riding privileges.

The standard fare to ride the DART is $3.00. This rate is reduced for seniors and individuals with disabilities, and monthly passes are available. Many passengers use the DART to get to work or school, shopping trips, doctor's appointments, and even trips to medical centers in Boston.

ADA Paratransit Service

The Americans with Disabilities Act (ADA) is a federal law passed in 1990, which states that individuals with disabilities are entitled to a comparable level of public transportation service as individuals without disabilities. In order to comply with the ADA, the CCRTA offers a demand response, or paratransit specifically for individuals with disabilities. This paratransit service operates within ¾ mile of existing routes and runs during the same hours as existing bus services. Trips may be requested during normal business hours on the day prior to the desired service.

ADA Paratransit Service is available to people with physical, mental, cognitive, and visual impairments that prevent them from boarding or disembarking fixed route services, from recognizing destinations, from understanding bus transfers, or from distinguishing between different buses in different routes. Residents who think they may qualify are encouraged to contact the CCRTA to request an application.

Fully Funded and Councils on Aging

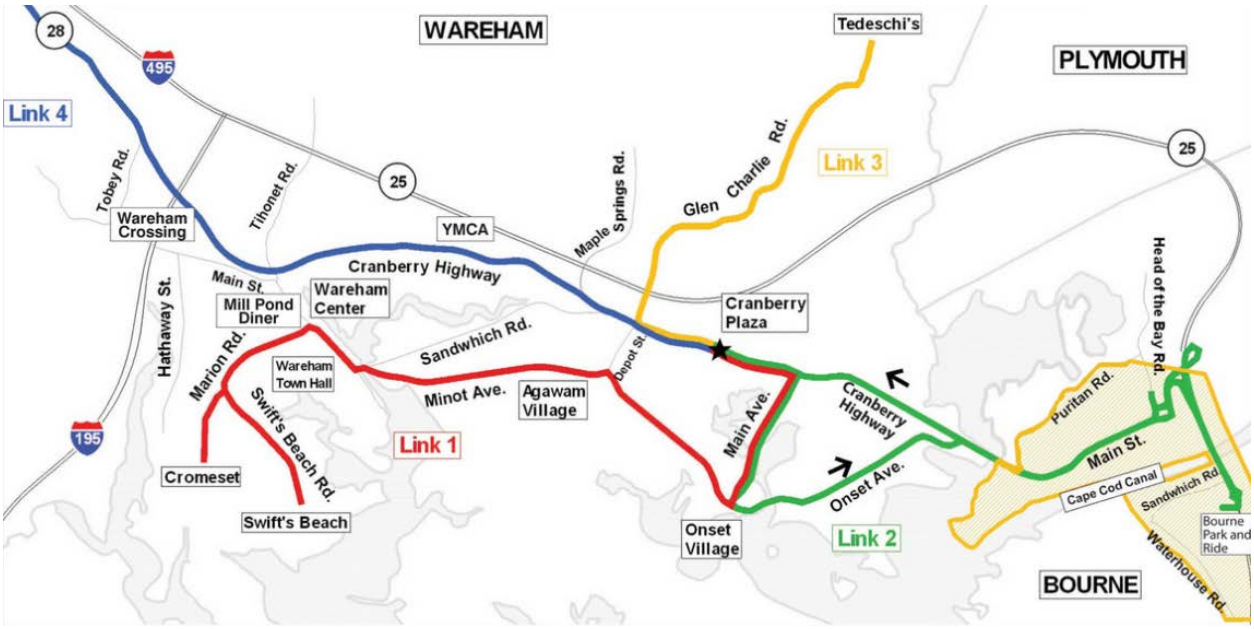
The CCRTA also helps transport passengers through contracting or funding bus service for other agencies. The buses are not operated by CCRTA staff, but were obtained through contract.

Greater Attleboro-Taunton Regional Transit Authority

The Greater Attleboro-Taunton Regional Transit Authority (GATRA) is the agency in charge of operating and maintaining public transit services for 17 member communities in Southeastern Massachusetts. GATRA serves Cape Cod with the Onset-Wareham Link (OWL), with stops in Bourne.

The OWL is a fixed route bus service, comprised of 4 "links" or routes, serving Wareham and Bourne. Link 2 connects Route 6/28, Onset Village, and Bourne and every hour from 7:55am to 5:30pm Monday-Friday with five trips on Saturday. Passengers can board at any point on the route by waving down the driver. Fares are $1.50 for a one-way trip, with discounts for the elderly, disabled, students, and children. Monthly passes are also available.

FIGURE 34. GATRA service in Bourne/Wareham/Onset



Source: Greater Attleboro-Taunton Regional Transit Authority

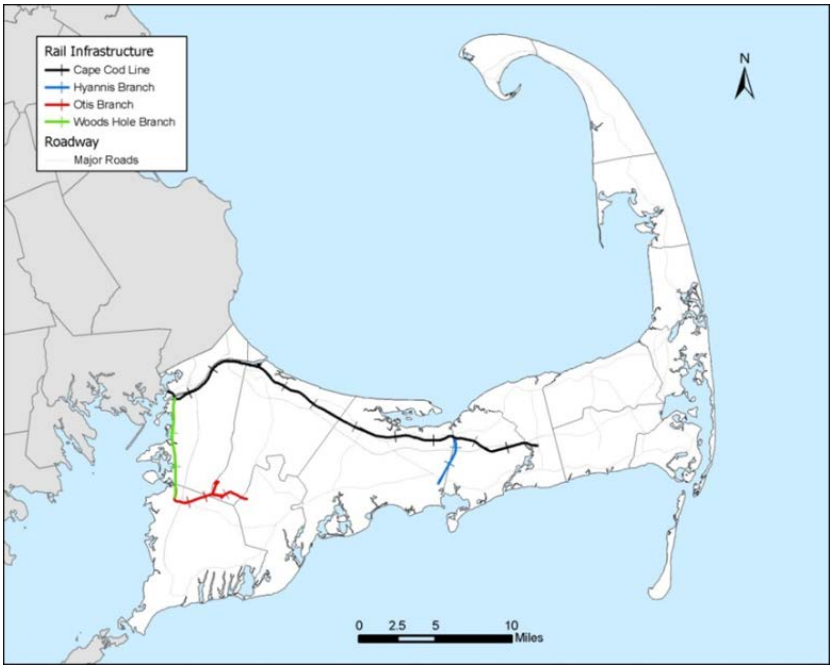
RAIL INFRASTRUCTURE

Rails

Cape Cod has a single rail line, the Cape Cod Line, with three branches. Together, they form a network of rail infrastructure which serves the freight and recreational needs of Cape Cod residents and visitor.

Rail infrastructure extended the entire length of Cape Cod, from Bourne to Provincetown, in the first half of the 1900s. Service was also available along the west coast, extending from Bourne to Woods Hole in Falmouth, and to Chatham. Today the expanse and usage of rail is reduced. Active rail still exists starting in Bourne and ending in three locations, Joint Base Cape Cod, Hyannis, and Yarmouth.

FIGURE 35. Cape Cod Rail Infrastructure



The portion of track that formally connected Dennis to Provincetown was dismantled. From Route 134 in Dennis to LeCount Hollow Road in Wellfleet the former tracks were turned into the Cape Cod Rail Trail bicycle facility. From LeCount Hollow Road north the rail track right of way had various conversions including sale to private owners. An extension of the Rail Trail is planned to connect into Barnstable, using rail right-of-way from Route 134 in Dennis to an area to the east of Higgins Crowell Road in Yarmouth. Rail track in Falmouth, from Old County south to Woods Hole have also been converted to a bike path called the Shining Sea Bikeway in 1976.

The rail tracks that have remained in place have varied levels of usage. Figure 35 shows the location of existing rails and Table 6 details the mileage and percent of total. This data was obtained from the MassDOT roadway inventory file.

TABLE 6. Cape Cod Rail Mileage by Category

		TOTAL MILES	PERCENT OF TOTAL
	Cape Cod Total	53.8	
By Rail Line	Cape Cod Line	32.0	59.5%
	Hyannis Branch	4.4	8.2%
	Otis Branch	10.4	19.3%
	Woods Hole Branch	7.0	13.0%
By Owner	Federally Owned	9.8	18.2%
	Army Corps of Engineers	0.2	0.3%
	MassDOT	43.8	81.4%
By Town	Barnstable	11.2	20.8%
	Bourne	14.4	26.8%
	Dennis	1.2	2.2%
	Falmouth	4.0	7.4%
	Mashpee	0.4	0.8%
	Sandwich	14.8	27.5%
	Yarmouth	7.8	14.5%

CAPE COD LINE

The Cape Cod Line begins in Buzzards Bay, Bourne after it crosses over the Cohasset Narrows Bridge. The tracks pass the former train station in Buzzards Bay. This building is currently used by the Canal Area Chamber of Commerce, is a stop on the CapeFLYER summer service and the parking lot has varied users including inter-city bus passengers. There are currently two rail platforms at this location. Cape Flyer passengers use the short raised platform, and the longer ground level platform is considered obsolete because it is not handicap accessible.

FIGURE 36. Cape Cod Canal Rail Bridge



Immediately after passing the Buzzards Bay train station the train must cross the Cape Cod Canal over the Cape Cod Canal Railroad Bridge. The Cape Cod Canal Railroad Bridge was first built in 1910 during the construction of the Cape Cod Canal. When the canal was reconstructed in 1933, a new railroad bridge was built over the widened waterway. Since the railroad grade could not be easily raised, the Army Corps of Engineers constructed a vertical lift railroad bridge. The new bridge was completed in December of 1935 and was the longest bridge of its kind at the time. Recently, the Cape Cod Railroad Bridge underwent a major rehabilitation effort, in large part through $25 million in Federal funds. Normally the bridge remains in the "up" position, allowing marine traffic access through the canal, and is lowered for rail service as needed. Marine traffic has statutory right-of-way over rail traffic but can be managed to accommodate scheduled train service such as the Cape Flyer. The bridge is 806 feet long, 297 feet high and has a high water clearance of 136 feet. Rail improvement is scheduled for 2015 to decrease waiting time for crossing the bridge.

FIGURE 37. Former Rail Station in Buzzards Bay



FIGURE 38. Rail Tracks West of the Sagamore Bridge



After Crossing the Cape Cod Canal the track splits between the Cape Cod Branch and Woods Hole Branch. The Cape Cod Branch follows the Cape Cod Canal and then runs alongside Route 6A through Sandwich and Barnstable. Out of service side tracks and former stations can be seen in West Barnstable and Sandwich. Plans to build a new platform for CapeFLYER passengers on the south side of the canal after the split were been presented in 2014. The Cape Cod Line continues to the Yarmouth "wye" (triangular junction) at Willow Street in Yarmouth. Here, the Hyannis Branch turns south, while the Cape Cod Line continues to the east.

East of Willow Street, the Cape Cod Line continues towards Dennis on its third segment. This is the easternmost section of railroad still in use on Cape Cod. It extends from Willow Street in Yarmouth to the Yarmouth Waste Management Facility just west of Station Avenue. The connection to the Waste Management Facility can be made from the mainline in either direction. Mass Coastal Railroad operates its "Energy Train" from this facility, usually one or two trips a day exporting solid waste to a waste-to-energy facility in Rochester, Mass. In total, the segment contains 3.38 miles of track, the grade separated crossing of Route 6, and 23 total roadway crossings.

FIGURE 39. Rail Crossing at Willow Street in Yarmouth



The last segment of the Cape Cod line is not in service. This segment starts at the Yarmouth Waste Management Facility east of Station Avenue and crosses the Bass River via a bridge. The Cape Cod Line used to continue all the way to Provincetown, with the Chatham Branch starting west of Route 124 in Harwich. However, the tracks were dismantled and a portion of the right-of-way was converted into the Cape Cod Rail Trail, which serves bicycle users and recreational purposes. Currently, however, the Cape Cod Line extends as far as Route 134 in Dennis. This final segment of track is out of service, abandoned, and not usable by train. Vegetation has encroached upon the rail tracks, crossing signals have been left in disrepair, and road crossings have been paved over. Plans for the westerly extension of the Rail Trail on a portion of this rail track through Yarmouth to Station Avenue have been designed are currently programed for construction in 2015.

FIGURE 40. Tracks East of Great Western Road in Yarmouth



In sum, the Cape Cod Line is the backbone of rail service on Cape Cod. It stretches 31.09 miles, and includes 3 bridges over waterways, 8 grade separated roadway crossings, and 51 total roadway crossings. The Cape Cod Line forms the majority of regional rail infrastructure. It serves as the only access to Cape Cod by rail, and is used by both Massachusetts Coastal freight services and Cape Cod Central Railroad for scenic excursion trains and the CapeFLYER for weekend passenger service.

HYANNIS BRANCH

The Hyannis Branch begins at the Yarmouth "wye" (triangular junction) at Willow Street in Yarmouth and travels south. The historic Hyannis Roundhouse, located between Route 28 and Main Street in Barnstable, has been converted into a nightclub and warehouses. The rail yard is now used for the Hyannis Transportation Center and as a rail yard for Cape Cod Central Railroad. A restaurant and a retail store now occupy part of the site. The terminus of the Hyannis Branch is a station for the Cape Cod Central. Originally, the Hyannis Branch continued from the rail yard south to a port facility in the Outer Harbor of Hyannis Harbor. The port and rail connection were dismantled however, and the right of way converted into Old Colony Road. This segment has also been rated for 30 MPH

travel. In total, the Hyannis Branch contains 4.39 miles of track, 2 grade separated crossings under Route 6, and 6 total roadway crossings. Currently the Hyannis Branch only serves passengers.

FIGURE 41. Rail Platform at the Hyannis Transportation Center



WOODS HOLE BRANCH

The Woods Hole Branch begins at the Canal Junction, splitting off from the Cape Cod Line and traveling south through Bourne and Falmouth. Three depot stations along the route, in Monument Beach, Pocasset, and Cataumet, have been converted to other uses. The tracks continue south to the Otis Junction just south of Old County Road in Falmouth. The track from Otis Junction to Joint Base Cape Cod is currently are owned by Mass Coastal Railroad but currently not in use by train. An out of service side track runs from Old Main Road to the Otis Junction. This portion of the Woods Hole Branch has been rated for 30 MPH travel. In total, the segment contains 8.43 miles of track, 2 bridges over waterways, 5 grade separated roadway crossings, and 17 total road crossings.

The final segment of the Woods Hole Branch runs from the Otis Junction to the overpass at the southern crossing of Palmer Avenue. Vegetation encroached upon the rail tracks and crossing signals have been left in disrepair, and road crossings have been paved. This section has been converted to an extension of the Shining Sea Bike Path. In total, the segment contains 5.82 miles of track, a bog sluiceway north of Fox Lane, 4 grade separated roadway crossings, and 14 road crossings.

FIGURE 42. Rail Tracks North of Old County Road in Falmouth



Originally, the Woods Hole Line continued south with stations at Depot Street and the current Steamship Authority port at Woods Hole. Originally built in 1872, this section of the Woods Hole line has been dismantled. The station at Depot Street now serves as a bus terminal, while the right-of-way has been converted into the Shining Sea Bike path.

OTIS BRANCH

From the Otis Junction, the Otis Branch runs east into Joint Base Cape Cod. Inside the base, the track splits into several terminals, with one track running as far east as Mashpee. The track from Otis Junction to Joint Base Cape Cod is currently used by Mass Coastal Railroad to export solid waste; this service is due to expire later this year. In total, the segment contains 10.51 miles of track, 3 grade separated roadway crossings, and 15 total roadway crossings.

FIGURE 43. Rail Tracks at the Otis Junction



Road Crossings

Exclusive rights-of-way can limit the interaction of rail and other modes, making rail transportation safer and faster. However, crossing at roadways can pose problems if the intersection is not properly signed and designed. Currently on Cape Cod, there are 66 at-grade roadway intersections along active rail lines. Some, such as the railroad crossing at Route 28 in Barnstable, can actually interfere with roadway traffic and cause congestion and delays. Of those, 21 are not gated, signalized or signed. Although most of these are minor roadways, they do represent a potential for mishap. Moreover, there are 18 grade separated roadway crossings, as well as 5 bridges over waterways along active rail lines. These bridges and overpasses must be maintained in order to ensure continued use. If rail service on Cape Cod is to be increased, further study of railroad crossings may be necessary to ensure safety and prevent interruptions to roadway traffic.

TABLE 7. Railroad Crossing by Type

		TOTAL	GRADE SEPARATED	GATED	SIGNALIZED	SIGNED	OTHER\ NONE
	Cape Cod Total	102	22	4	26	19	31
By Rail Line	Cape Cod Line	62	10	3	20	11	18
	Hyannis Branch	6	2	1	-	1	2
	Otis Branch	15	3	-	-	2	10
	Woods Hole Branch	19	7	-	6	5	1
By Owner	Federally Owned	13	4	-	5	3	1
	Army Corps of Engineers	15	3	-	2	-	10
	MassDOT	73	15	4	27	13	14
By Town	Barnstable	18	1	3	8	4	2
	Bourne	27	11	-	6	5	5
	Dennis	3	-	-	-	-	3
	Falmouth	6	4	-	1	-	1
	Mashpee	33	2	1	11	3	16
	Sandwich	15	4	-	1	6	4
	Yarmouth	7.8	14.5%				

Source: www.masscoastal.com/train-energy.php

AVIATION INFRASTRUCTURE

For Cape Cod travelers, air transportation provides an important link from Cape Cod to Boston, New York, and the islands of Martha's Vineyard and Nantucket. Six airfields and airports serve Cape Cod as a base for air transportation.

TABLE 8. Airports and Airfields of Cape Cod

NAME	FAA IDENTIFIER	FACILITY TYPE
Barnstable Municipal Airport	HYA	Scheduled Air Carrier Service
Provincetown Municipal Airport	PVC	Scheduled Air Carrier Service
Chatham Municipal Airport	CQX	General Aviation
Falmouth Airpark	5B6	General Aviation
Cape Cod Airfield	2B1	General Aviation
Cape Cod Coast Guard Air Station	FMH	Military

The commercial service airports, Barnstable Municipal Airport and Provincetown Municipal Airport, supply data on total enplanements to the Federal Aviation Administration (FAA). In 2017, Barnstable Municipal Airport reported 29,455 enplanements and Provincetown Municipal Airport reported 8,900 enplanements.[1]

Barnstable Municipal Airport

The largest airport on Cape Cod is Barnstable Municipal Airport, Boardman-Polando Field located in Hyannis. It is one of two airports on Cape Cod to provide scheduled air carrier service.

FIGURE 44. Barnstable Municipal Airport Terminal



[1] 2017 Air Carrier Activity Information System data

The history of the airport goes back to 1928, when Charles Ayling and his son Robertson formed the Hyannis Airport Corporation. During World War II, the Works Progress Administration funded the construction of three paved 4,000-foot runways, while the Army and then the Navy assumed control of the airport. After the war ended, the navy turned over control of the Hyannis Airport to the Town of Barnstable. The advent of larger planes and increased passenger service required the construction of a larger, 5,400-foot runway in the mid-1950s, new terminals in 1957, and a control tower in 1961. In 1981, the airport was renamed the Barnstable Municipal Airport, Boardman-Polando Field. Russell Boardman and John Polando were two Bay State pioneers who flew a record nonstop distance of 5,011 miles from the United States to Istanbul in 1931.

Recent improvements to the airport include a new 35,000 sq. ft. passenger terminal, a new 85 ft. air traffic control tower, and a new vehicle access road—all opened at the end of 2011— extensive parking facilities, new aircraft ramps and taxiways, a rescue and maintenance building and an aircraft fuel farm.

FIGURE 45. Barnstable Municipal Airport



Barnstable Municipal Airport the airport is home to Cape Air, Nantucket Airlines, Island Airlines, and Rectrix Aviation along with other charter, corporate and general aviation aircraft operators. JetBlue operates daily service to JFK-New York in season.[2]

A 2014 state study found that the airport has a direct economic impact of $119.2 million a year on the Cape Cod community. The analysis, by the Aeronautics Division of the Massachusetts Department of Transportation, calculated the value of jobs, payroll and business generated by the airport and its tenants, along with visitor spending.

[2] http://www.town.barnstable.ma.us/airport/aboutairport/aboutairport.asp

The study found there is a measurable multiplier of an additional $88.7 million a year produced by the recirculation of money spent locally by airport businesses and the people employed there. Overall, the study determined that Barnstable Municipal Airport generates 2,135 jobs, an $85.3 million payroll and $208 million a year in direct and indirect benefits.[3]

Provincetown Municipal Airport

The Provincetown Municipal Airport also has scheduled air carrier service. The Airport provides passenger service to Logan Airport in Boston. The airport is located at the end of Race Point Road and is one of two airports in the country that is located in National Park territory. Cape Air and Jet Blue Airways operate passenger services.

FIGURE 46. Provincetown Municipal Airport



Cape Cod Coast Guard Air Station

U.S. Coast Guard Air Station Cape Cod (ASCC), with its four MH-60T Jayhawk helicopters and three HC-144A Ocean Sentry fixed-wing aircraft, is the only Coast Guard Aviation facility in the northeast. As such, ASCC is responsible for the waters from New Jersey to the Canadian border. Centrally located at Joint Base Cape Cod, ASCC maintains the ability to launch a helicopter and/or fixed-wing aircraft within 30 minutes of a call, 365 days-a-year, 24 hours-a-day, and in nearly all weather conditions.[4]

[3] http://www.town.barnstable.ma.us/airport/aboutairport/aboutairport.asp

[4] http://www.uscg.mil/d1/airstacapecod/

Other General Aviation Airports

Several other airports are open to the public and offer general aviation service. Chatham Municipal Airport, located on George Ryder Road, offers a variety of tours around Monomoy Island and the Outer Cape. One asphalt runway provides service for the 31 aircraft based on the field.

Another general aviation airport is the Falmouth Airpark, located near Route 28 and Fresh Pond Road. The airpark has a single asphalt runway, which serves 53 aircraft. A nearby "Fly-In Community," with aircraft access from the homes to the runway, offers shares of the Falmouth Airpark with residence.

Lastly, the Cape Cod Airfield on Route 149 and Race Lane in Marstons Mills provides tours and glider rides from three turf runways. The length of the runways, the height of the nearby trees and the absence of a fence restrict the type of airplanes that can use the airfield. It opened as the Cape Cod Airport on July 4, 1929 with an air circus, stunt flights, parachute jumps, and other spectacles. Currently, the airfield is operated by Cape Cod Flying Service and serves as a base for 14 aircraft.

Air Service Accessibility and Mobility

Barnstable Municipal Airport is accessible by various means. According to the Cape Cod Transit Task Force Report, the vast majority airport users arrive by automobile. Rental car service is provided by over a dozen rental car agencies, with taxi service available as well. Moreover, the Villager Line of the Cape Cod Regional Transit Authority provides local bus service to the airport upon request, carrying passengers to the Hyannis Transportation Center and Barnstable Park-and-Ride lot. Paratransit service to the airport can also be arranged.

The roadways surrounding the Barnstable Municipal Airport have always provided a challenge in providing safe and convenient access for passengers. While the airport is near many regional roadways (i.e., Route 132 and Route 28), getting from the regional roadways to the airport is not always straightforward. While recent signage improvements and resources online have assisted motorists, long-term improvements are needed. Such access improvements, particularly at the Airport Rotary, have been included in preliminary designs that were part of the Hyannis Access Study[5]. As funding decisions are made, it is critical to the regional air service that these improvements be seen as a priority for the region.

5 http://www.capecodcommission.org/resources/transportation/hyannisaccess/HASI_2013_final_report06282013.pdf

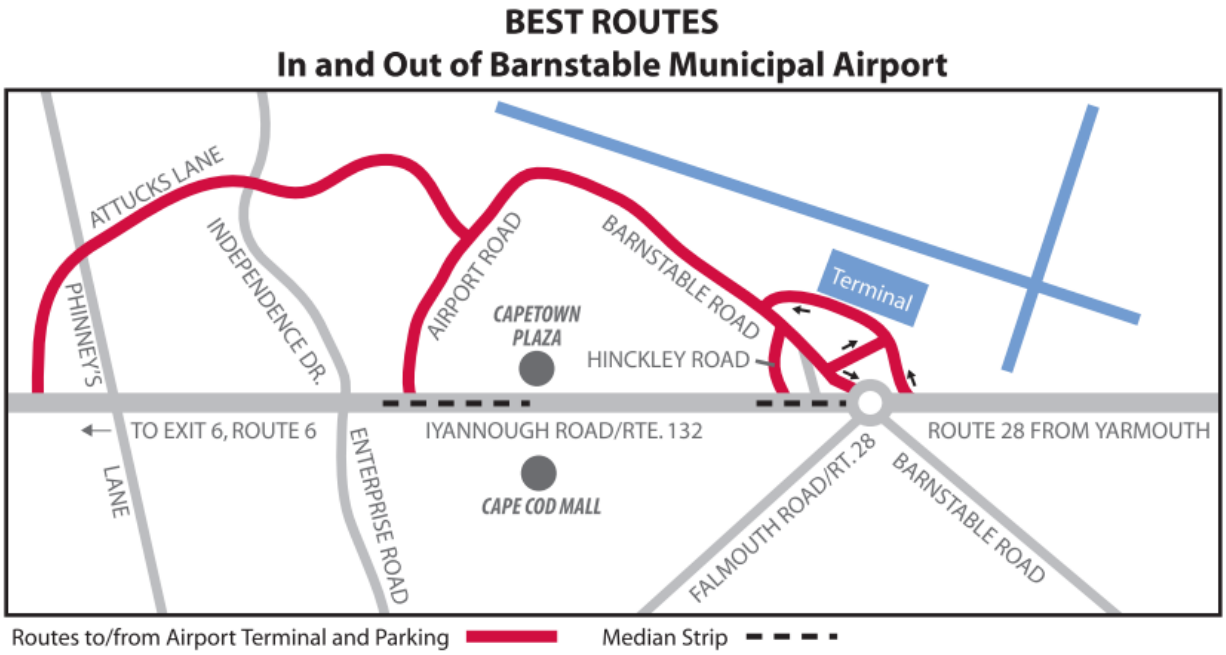


FIGURE 47. Barnstable Municipal Airport Access

Provincetown Municipal Airport is primarily accessible by road. The Provincetown Shuttle service makes a stop at the airport, and connects air service passengers with interregional bus service and ferry service in downtown Provincetown. Provincetown Municipal Airport is also located along a bicycle path, which serves users that are traveling light. However, the majority of users access the Provincetown Municipal Airport via automobile, including taxi.

Interregional bus service also links travelers on Cape Cod to air service in Boston. Plymouth and Brockton Street Railway Company runs 16 buses each weekday from the Hyannis Transportation Center to the terminals at Logan International Airport and 15 per day on weekends and holidays. This route includes stops at the Barnstable and Sagamore Park-and-Ride lots. By providing direct service to Logan International Airport, Plymouth and Brockton provides travelers with increased access to domestic and international air services. Peter Pan Bus Lines currently offer six daily buses from Bourne to T.F. Green Airport in Providence, RI.

Air service on Cape Cod offers users the potential of global mobility. With service to major air transportation hubs such as New York City, Boston, and Providence, a user can transfer to domestic and international flights. Ironically, however, no scheduled flights exist between Cape Cod airports. Thus, there is a great deal of air service mobility between on-Cape and off-Cape sites, but no intraregional mobility.

MARITIME INFRASTRUCTURE

Cape Cod has approximately 586 miles of tidal coastline, with many inlets and bays that provide marine access to the land. Seaports have been constructed along several of these bays and inlets to facilitate the transfer of people and goods.

Cape Cod Channels

CAPE COD CANAL

The Cape Cod Canal connects Buzzards Bay to Cape Cod Bay through the towns of Bourne and Sandwich. The channel itself stretches 17.4 miles in length, extending from the outer end of the northerly breakwater in Cape Cod Bay to a point in Buzzards Bay near Cleveland Ledge about 5 miles southwest of the Wings Neck Light. It provides a shorter route for vessels traveling along the Atlantic Coast, reducing trip length by 65-150 miles depending on origin and destination. Additionally, the route is a safer path, allowing vessels to avoid the shoals and shipwrecks scattered along the Outer Cape route.

A canal was envisioned as early as 1623 by Myles Standish of the Plymouth Colony. Studies and surveys were produced over the next 250 years recommending the construction of a canal, until a charter was finally granted to the Cape Cod Canal Company in 1880.Finally, in 1907, August Belmont purchased the charter to build the canal. Work began in June of 1909, and was completed in 1914 at 100 feet wide and 25 feet deep. The new toll seaway opened with great celebration, however small dimensions and low toll revenues dogged operations in the upcoming years.

In 1918, the U.S. Government assumed control of the canal after a German U-boat attacked five vessels just three miles off Cape Cod. Control was returned to Belmont's company after World War I in 1920. The Cape Cod Canal was sold to the federal government for $11.5 million in 1921. Responsibility for the Cape Cod Canal was passed to the Army Corps of Engineers, who subsequently set out to improve it. The Corps began construction on an expanded canal in 1935 and completed the work by 1940. The existing canal is the result of this work.

The current Cape Cod Canal has a width of 480 feet and a 32-foot deep channel, allowing two-way travel. At that size, the Cape Cod Canal is the world's widest sea-level canal. The old canal drawbridges were replaced in 1935 by the Bourne, Sagamore, and Railroad bridges. The architect Ralph Adams Cram designed the Sagamore and Bourne bridges. Built simultaneously with Work Progress Administration funds, construction provided about 700 jobs. The existing bridges have larger spans of 616 feet each and provide an overhead clearance of 135 feet. A 32-foot deep approach channel was also constructed to facilitate movement of ships from Buzzards Bay into the canal. The channel is 700 feet wide from Cleveland Ledge to Wings Neck and 500 feet from Wings Neck to the canal entrance. Other improvements to the canal include two mooring basins, two basins for small boats, an improved lighting system, a 600-foot and a 3,000-foot stone jetty at the entrance to canal from Cape Cod Bay, and a dike between Hog Island and Rocky Point in Bourne.

Support for the navigation mission at the Canal includes a state of the art Marine Traffic Control System, Marine Traffic Patrol by Corps vessels, and maintenance and improvement of the Canal channel and mooring basins.

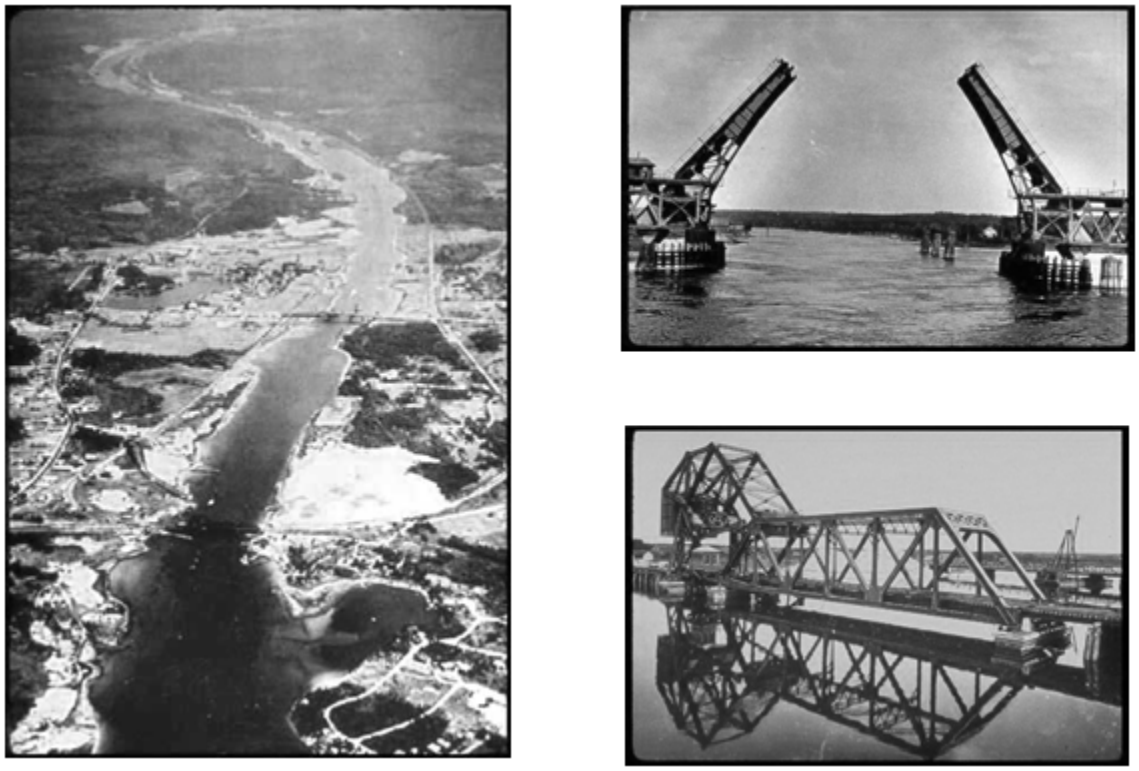


FIGURE 48. Historic Cape Cod Canal Pictures

Source: U.S. Army Corps of Engineers

The Army Corps of Engineers continues to operate and maintain the Canal and its bridges today. The highway bridges now carry over 34 million vehicles to and from the isthmus of Cape Cod annually. Over six thousand ships, tug and barge combinations and other large commercial vessels pass through the canal annually. Marine traffic is monitored and regulated 24 hours a day, 365 days a year. Moreover, Corps patrol boats stand by to assist vessels in distress. As a result, the Cape Cod Canal is a safe shortcut for marine traffic from Cape Cod Bay to Buzzards Bay. Recreational boaters take advantage of this fact as well with over seven thousand small boat canal transits each year.

WOODS HOLE CHANNEL

Woods Hole Channel connects ports and ferry terminals in Woods Hole Harbor to seaports in Buzzards Bay and Vineyard Sound and is the most heavily traveled Cape Cod waterway. It is located between Penzance Point on the mainland and the northernmost of the Elizabeth Islands. The channel connects Buzzards Bay with Great Harbor in Woods Hole.

The Army Corps of Engineers has performed work on the Woods Hole Channel since 1870. Major works include the dredging of the channel and the removal of dangerous shoals and boulders from the main channel. By 1913, the Corps completed the current dimensions of the channel.

The Woods Hole Channel is comprised of a main channel and two branches (see following figure). The main channel, referred to as "The Strait," is 2,500 feet long, 13 feet deep and 300 feet wide. It connects an inlet of Buzzards Bay to Woods Hole between Grassy Island and Red Ledge. The larger branch, called "Broadway," separates from the Strait at Middle Ledge and travels south of Red Ledge to Vineyard Sound. Broadway is 1,300 feet long, 13 feet deep and 300 feet wide. The final branch simply provides a route into Buzzards Bay that is aimed towards the north. The smaller branch is also 13 feet deep and 300 feet wide.

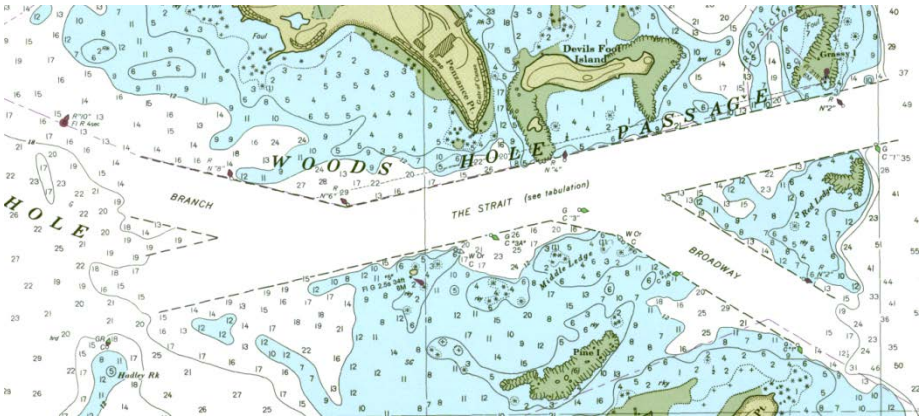


FIGURE 49. Woods Hole Channel

NANTUCKET SOUND CHANNELS

Nantucket Sound also contains several channels that serve Cape Cod's water traffic. The Cross Rip Shoals mark the point, about 14 miles south of Hyannis Harbor, where several of these channels meet. From this point, vessels can travel to Buzzards Bay, Martha's Vineyard, Nantucket, Cape Cod, and the Atlantic Ocean. The channel at the Cross Rip Shoals was created by the Army Corps of Engineers and is 30 feet deep, 4,000 feet wide, and 1.7 miles long (see following table). The Pollack Rip Shoals are located about three miles to the east of Monomoy Island. The Army Corps of Engineers constructed a channel extending six miles through the Pollack Rip Shoals in 1925. The Pollack Rip Channel is 30 feet deep and 2,000 feet wide. It serves as the entrance to Nantucket Sound from the Atlantic Ocean. Taken together, the Wood Hole Channel, Cross Rip Channel, the

Pollack Rip Channel, and the Main Channel create a thoroughfare for water traffic within Nantucket Sound (see following figure).

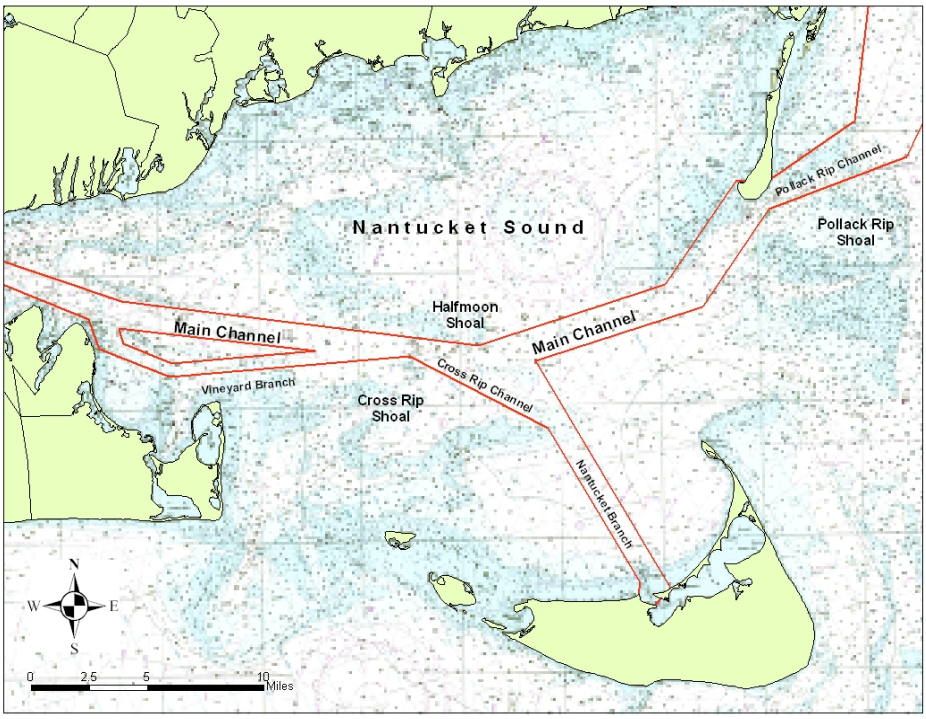


FIGURE 50. Nantucket Sound Channels

Water Transportation Infrastructure

A lighthouse is a structure, such as a tower, that gives a continuous or intermittent light signal to navigators. Cape Cod is famous for its many lighthouses and their unique towers. However, in addition to being aesthetically pleasing, these lights serve a vital purpose. Along with other navigational lights and aids, they form the infrastructure that keeps water traffic on course and out of danger. There are ten active lighthouses on Cape Cod, as listed in the table below. Most are located in the Outer Cape region. Additionally, there are six inactive lighthouse structures still in their original locations. Navigational lights and fog signals (bells, whistles, gongs, and horns) are generally located along the perimeter of channels and at dangerous areas. Due to its shoals and other hazards, the majority of Cape Cod's navigational aids are located in Nantucket Sound. Cape Cod has 43 fog signals and 72 navigational lights in total.

FIGURE 51. Navigational Aids

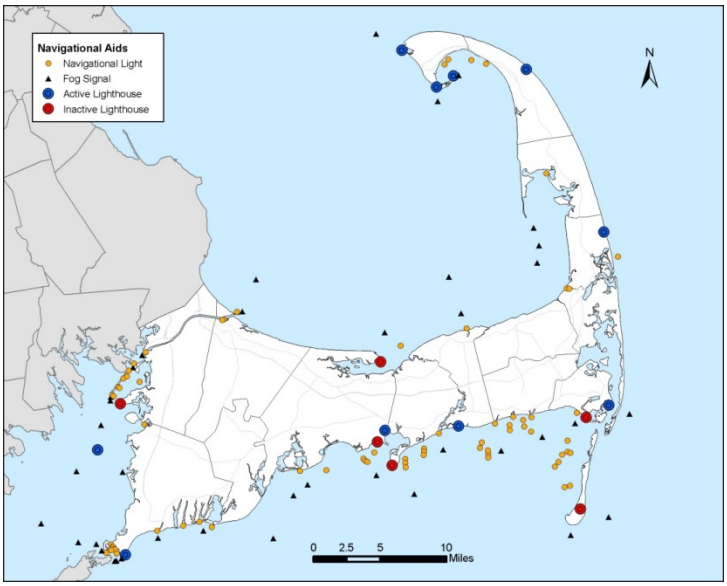


TABLE 9. Lighthouses

LIGHTHOUSE NAME	TOWN
Nobska Light	Falmouth
Cleveland Ledge Light	In Buzzards Bay
Lewis Bay Light	Barnstable
West Dennis Light	Dennis
Chatham Lighthouse	Chatham
Nauset Light	Eastham
Highland Light	Truro
Race Point Light	Provincetown
Wood End Light	Provincetown

TABLE 10. Navigational Lights and Fog Signals

	NAVIGATIONAL LIGHTS	FOG SIGNALS
Atlantic Ocean	1	4
Buzzards Bay	13	13
Cape Cod Bay	12	11
Nantucket Sound	46	15
Total	72	43

Harbors

Charts of various ports shown in the following figures were produced by the National Oceanic and Atmospheric Administration's *Coast and Geodetic Survey*.

WOODS HOLE HARBOR

Woods Hole Harbor is located in Falmouth. It is split into two harbors by Juniper Point: Great Harbor and Little Harbor (see following figures). Little Harbor is located in the 550,000 square feet of water between Juniper and Nobska Points. Located on the western side of Little Harbor is a Coast Guard station, which is also used for recreational purposes. Great Harbor is located between Penzance Point and Juniper Point. A bascule drawbridge separates Great Harbor from Eel Pond to the north. Woods Hole Channel, which leads west to Buzzards Bay, connects at the southern end of Great Harbor. Of the more significant ones are the 15-foot deep anchorage for the Steamship Authority ferries and the 22-foot deep anchorage for the Woods Hole Oceanographic Institute. Great Harbor is home to ferry passenger service, charter and sport fishing services, research vessels, and recreational boats.

FIGURE 52. Great Harbor in Falmouth

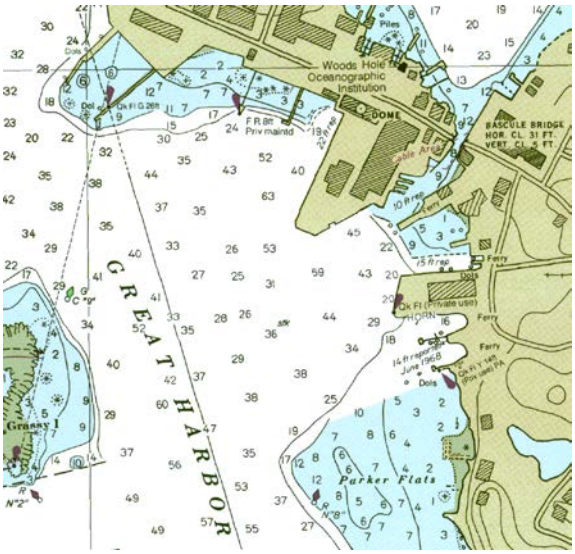
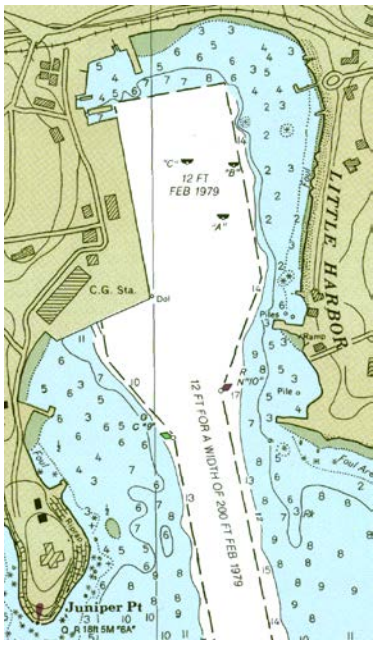


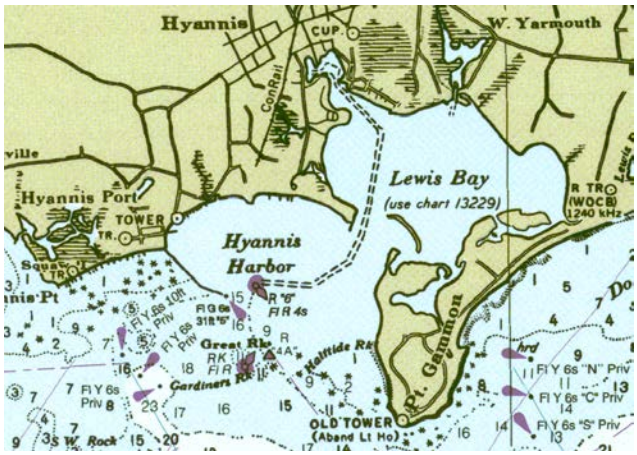
FIGURE 53. Little Harbor in Falmouth



HYANNIS HARBOR

Hyannis Harbor in Barnstable consists of an outer harbor, a middle harbor (known as Lewis Bay), and an inner harbor (see following figure). Dunbar Point, a 1,000-foot stone jetty, and the Kalmus Park Beach separate the Outer Harbor and Lewis Bay. Major boat terminals and piers are located within the Inner Harbor. The Army Corps of Engineers began construction projects in the harbor in 1882. Currently, Hyannis Harbor includes a 12-foot deep anchorage at the eastern end of the Inner Harbor. In Lewis Bay, there is a 15.5-foot deep anchorage of about 55 acres behind a 1,170-foot long breakwater at Dunbar Point. A 6,000-foot long channel, 12 feet deep and 100 feet wide, extends from the Inner Harbor into the deep water in Lewis Bay. From there, a 7,200-foot long channel extends to the Outer Harbor. Hyannis Harbor is used as a terminal for ferry service, freight service, charter, and sport fishing services, as well as for recreational purposes.

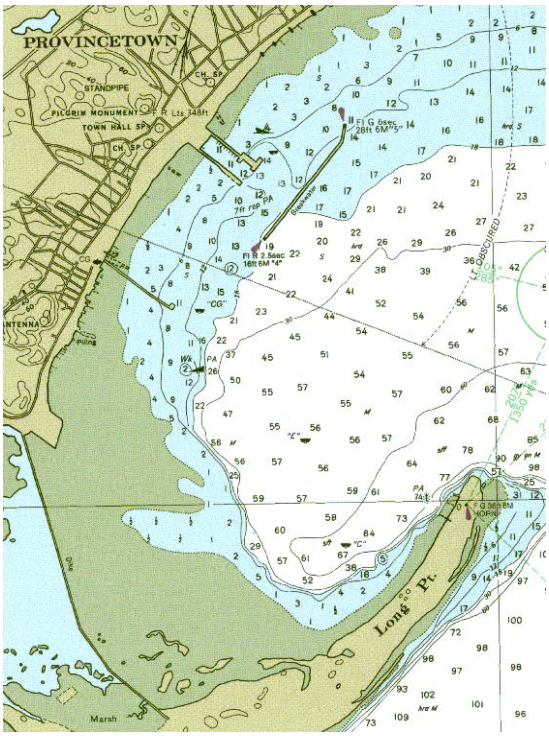
FIGURE 54. Hyannis Harbor



PROVINCETOWN HARBOR

Provincetown Harbor was initially constructed during the nineteenth century. In 1914, the Army Corps of Engineers completed improvements to the harbor, including a 6,150-foot dike from Stevens Point across the House Point Island Flats to the sandy spit at Wood End. A stone breakwater, built in 1972, runs parallel to the shore about 835 feet from the end of MacMillan Wharf. The breakwater is 15.5 feet high and 2,500 feet long. Currently, the harbor is used as a terminal for ferries, whale watching tours, and as a base of operations for fishing boats (see following figure). Local and state officials have discussed and rejected the expansion of the harbor to include a freight pier. According to a MassDOT report ("Identification of Massachusetts Freight Issues and Priorities," 1999), the narrow streets in Provincetown's historic district and the traffic congestion during peak hours make such a proposal unfeasible.

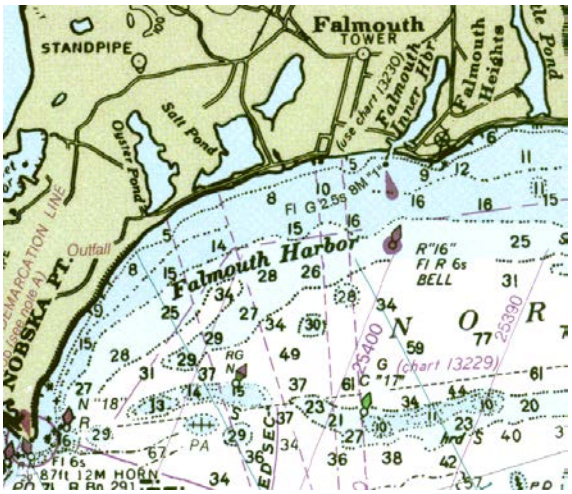
FIGURE 55. Provincetown Harbor



FALMOUTH HARBOR

Falmouth Harbor is located three miles east of Woods Hole, on the waterway between Falmouth Heights Road and Scranton Avenue. The Army Corps of Engineers began construction work in the harbor in 1957. Falmouth Harbor is 17 acres in area and 10 feet deep, with a 100-foot wide entrance channel. It is currently used as a terminal for ferries and charter tours, as well as for fishing and recreation.

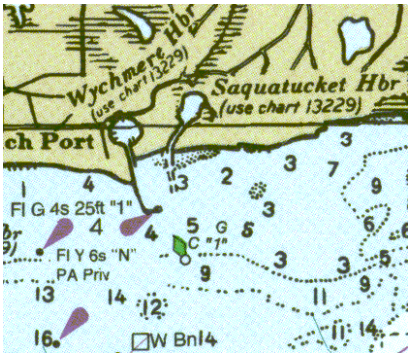
FIGURE 56. Falmouth Harbor



SAQUATUCKET HARBOR (HARWICHPORT)

Saquatucket Harbor in Harwich serves the Lower Cape (see following figure). The harbor has a 12-foot deep, 200-foot long channel leading to a 12-foot deep anchorage. The Coast Guard maintains a station at this facility. Accessible from Route 28 in Harwichport, the harbor is a terminal for ferry service, tour boats, commercial fishing and recreational use. A private passenger ferry operates from this harbor to provide seasonal service to Nantucket.

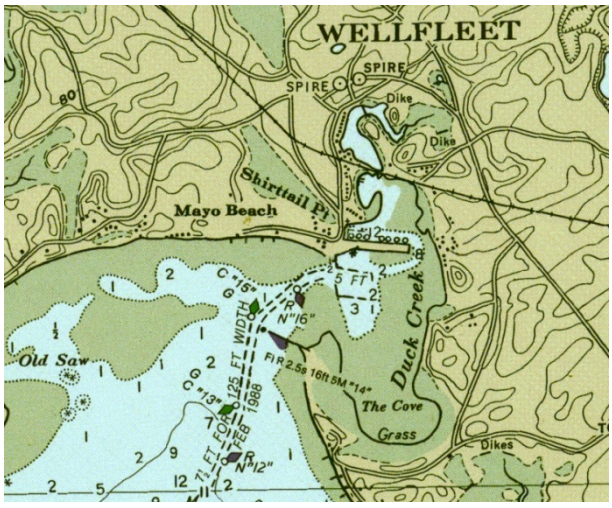
FIGURE 57. Saquatucket Harbor



WELLFLEET HARBOR

Wellfleet Harbor is located at the mouth of Duck Creek, just south of Wellfleet Center (see figure below). Work on the harbor dates back to 1899 when a 4-foot deep channel was constructed between deep water and the town wharves at Duck Creek. The state dredged the channel in 1916 and deepened it by two feet. The Army Corps of Engineers later improved the harbor by creating a 10-foot deep, 125 foot-wide, 0.8-mile long channel from the middle of Wellfleet Harbor to the town landing, as well as a 10-foot deep, 500-foot long, 800-foot wide anchorage area. Currently, Wellfleet Harbor serves recreational boating, boat tours, commercial fishing, and sport fishing charter boats.

FIGURE 58. Wellfleet Harbor



STAGE HARBOR (CHATHAM)

Stage Harbor, located in Chatham, is one of the major seaports in the Lower Cape (see following figure). The harbor is divided into two parts: the Upper Harbor and Stage Harbor. The Upper Harbor extends from Bridge Street to Morris Island, and Stage Harbor extends from Morris Island to the Harding Beach bars. Original work in Chatham Harbor, including the construction of a channel through the Harding Beach bars, was completed in 1901. In the late-1950s, the Army Corps of Engineers constructed a new 2.1-mile channel from Chatham Roads through Harding Beach and into the Upper Harbor. Other harbor features include a 500-foot long stone jetty at the southwestern corner of the channel, a 2,500-foot long sand dike from Harbor Beach to Morris Island, and an adjacent 1,500-foot long timber jetty that has been partially removed. Additionally, a boathouse facility and dock in the Upper Harbor are maintained by the Chatham Coast Guard Station. Stage Harbor is used as a base for boat tours, recreational boats and a small local fishing fleet.

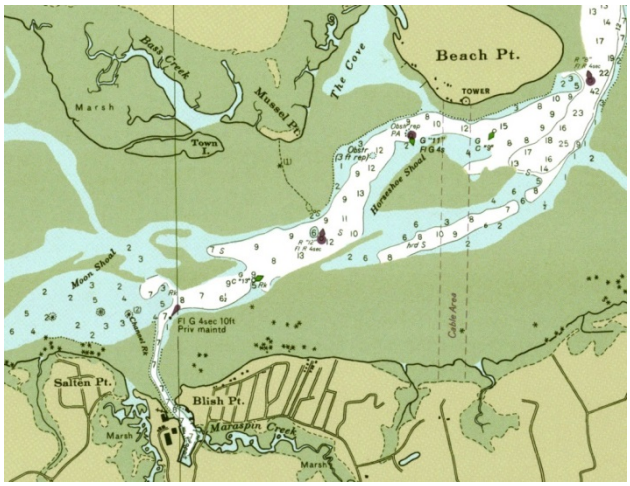
FIGURE 59. Stage Harbor



BARNSTABLE HARBOR

Barnstable Harbor lies between Sandy Neck and the mainland of Cape Cod (see figure below). The marina and landing in Barnstable Village serves as the primary seaport for Barnstable Harbor. A small channel, 7 feet deep, provides access to the marina from the entrance of the Harbor at Beach Point. Barnstable Harbor is the terminal for recreational and whale watching tours, as well as fishing vessels.

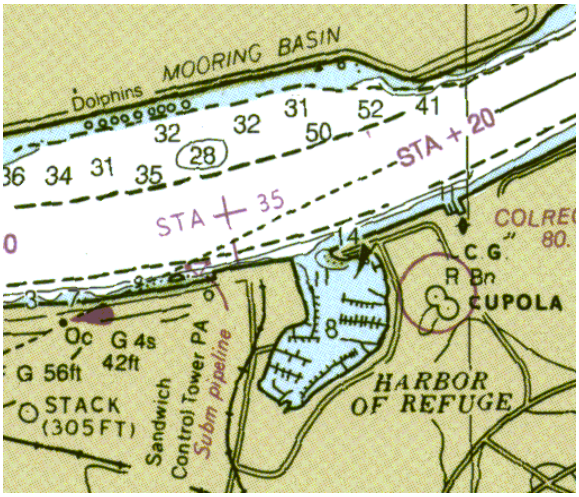
FIGURE 60. Barnstable Harbor



SANDWICH MARINA

Sandwich Marina is located on the eastern end of Cape Cod Canal in Sandwich. The marina has an anchorage of 8 feet, serving as a home to many fishing and recreational vessels. The marina primarily serves recreational and fishing vessels. With its proximity to road, rail tracks, and canal access, Sandwich Marina has the potential to be a ferry terminal for service from Boston and Plymouth (see following figure).

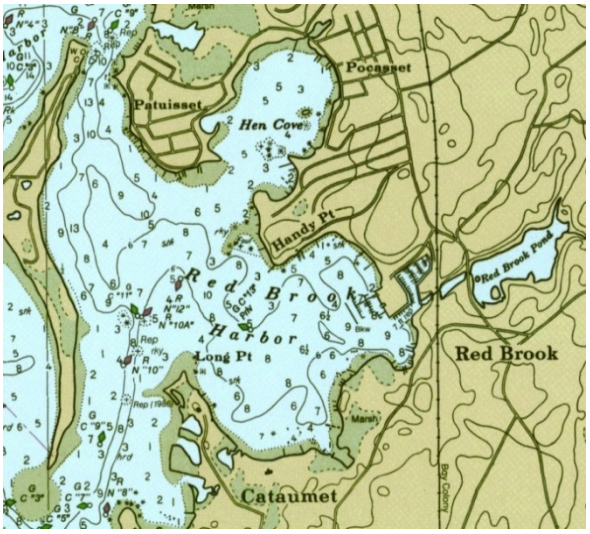
FIGURE 61. Sandwich Marina



RED BROOK HARBOR

Red Brook Harbor in Bourne is one of Cape Cod's seaports on Buzzards Bay. The harbor is located behind Bassetts Island between Handy and Long Points (see figure below). The boat docks are separated into two sections. The first, exposed to the harbor, provides an anchorage of 8 feet. The second is 7.5 feet deep and is connected to the harbor by a short channel. Red Brook Harbor serves as a base for fishing and recreational boats.

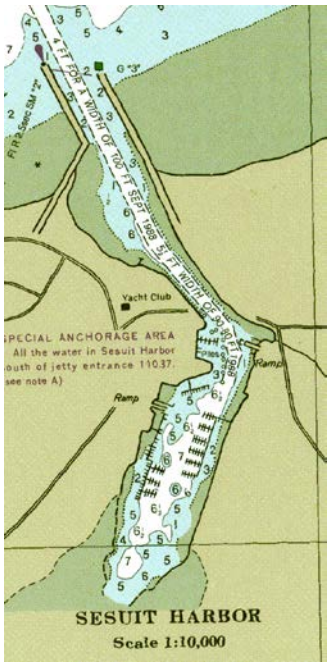
FIGURE 62. Red Brook Harbor in Bourne



SESUIT HARBOR

Sesuit Harbor is located in the Town of Dennis. It is accessible by Sesuit Neck Road and Harbor Road on the west, and Cold Storage Road and Salt Works Road on the east. The channel entering the harbor is 100 feet wide, narrowing to 80-90 feet, and approaching an anchorage of 6-7 feet (see following figure). With a yacht club located on the western side of the harbor, and a boat ramp on the eastern side, Sesuit Harbor is used for fishing and recreational use.

FIGURE 63. Sesuit Harbor in Dennis



The nine ferry routes provide connection from Falmouth (Falmouth Harbor and Woods Hole), Hyannis (Hyannis Harbor), Provincetown (Fisherman's Wharf), and Harwich Port (Saquatucket Harbor) to Martha's Vineyard, Nantucket, Boston, and Plymouth.

BICYCLE AND PEDESTRIAN INFRASTRUCTURE

There are numerous destinations and pathways for bicyclists and pedestrians to use on Cape Cod. Bicycle and pedestrian infrastructure and facilities require smaller right-of-ways and less overall investment than roadways. There are three basic types of bicycle infrastructure: paths, lanes, and routes. Paths generally have their own separated right-of-way and follow certain standards for width, grade, and accessibility. Bicycle lanes are separate lanes within roadways marked for bicycle use. Bicycle routes are roadways with wide shoulders that have been designated for bicycle use.

Pedestrians utilize shared use paths and sidewalks. Facilities of this type support village centers and local businesses, and encourage travelers to walk instead of driving. According to the Rails to Trails Conservancy, bicycle and pedestrian facilities can increase property values and make areas more attractive to new residents, businesses, and tourists.

The bicycle and pedestrian infrastructure of Cape Cod along with discussion of challenges those road users face in presented in Appendix F.

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CAPE COD COMMISSION

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix C: Safety

JULY 15,
2019

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Technical Appendix C: Safety

The concern over safety is made clear in the first goal of the Regional Transportation Plan:

"Provide safe travel options for all users"

Transportation users have a right to a transportation system where their person and possessions will arrive at their destinations unharmed and undamaged. Moreover, protecting the value of freight traveling over the transportation network is essential to the economy of Cape Cod. Therefore, it is important that transportation infrastructure be designed to minimize the possibility of hazardous situations or accidents. Existing traffic laws must also be enforced to prevent the improper use of the transportation system. For all of these reasons, the Regional Transportation Plan sets the goal of providing safety for people and goods.

This appendix includes sections describing the seasonal and year-round issues affecting transportation safety including a description of the Cape demographics and some information about how they will change over time. Summaries of important safety studies are presented as well.

BARNSTABLE COUNTY HIGH CRASH LOCATIONS

In 2019, the Cape Cod Commission completed an effort to rank the top intersections of critical safety concern across Cape Cod. Before the data could be gathered and sorted into any particular order or rank, it was necessary to specify the characteristics that signify an intersection as a safety concern. The Commission decided that there are several ways to interpret crash data – meaning, several possible ways to determine which intersections are of highest safety concern.

The Cape Cod Commission identified four methods of sorting data to create a top list of intersections of critical safety concern:

- **Based on Number of Crashes:** Perhaps most simple method is to look at the total number of crashes for each location and then rank them from most number of crashes to least. This method is very basic, in that it does not consider the severity of the crashes or the number of vehicles using the roadway.
- **Based on Equivalent Property Damage Only (EPDO):** This method considers the severity of each location's crashes. A location's EPDO value is determined using a formula that weights each crash based on whether it included a fatality, an injury but no fatality, or property damage only. Fatal crashes are assigned a value of ten; injuries are assigned a value of five; and property damage only crashes are assigned a value of one. To determine an intersection's EPDO, the weighted values are summed to an aggregate value. Under this method, the intersection with the highest EPDO value is ranked most hazardous.

- **Based on Crash Rate:** A crash rate for a location compares the number of crashes to the number of vehicles passing through it. The crash rate is interpreted as number of crashes per million entering vehicles. It is possible that a location with many crashes is not geometrically flawed or in poor condition, but merely a victim of the law of averages – many entering vehicles inflating the number of crashes. The crash rate method attempts to distinguish locations with safety problems relative to their usage.
- **Based on EPDO Rate:** This method is based on the same idea as using the crash rate, whereas it compares an intersection's EPDO to its usage. The EPDO rate is interpreted as EPDO per million entering vehicles. The vehicle with the largest EPDO rate is ranked number one under this method.

Base data for this analysis was provided by the Massachusetts Department of Transportation (MassDOT) in the form of geographically located crash clusters for the most recently available five years of data (2012-2016). The data provided by MassDOT included the number of reported crashes at each location and the severity of the crashes. It should be noted, however, that this dataset only includes incidents whose reports contained enough information to accurately locate them. Of the 26,616 crash reports collected by the Massachusetts Registry of Motor Vehicles, 25,060 incidents were located by MassDOT. The incidents are mapped on the following figure.

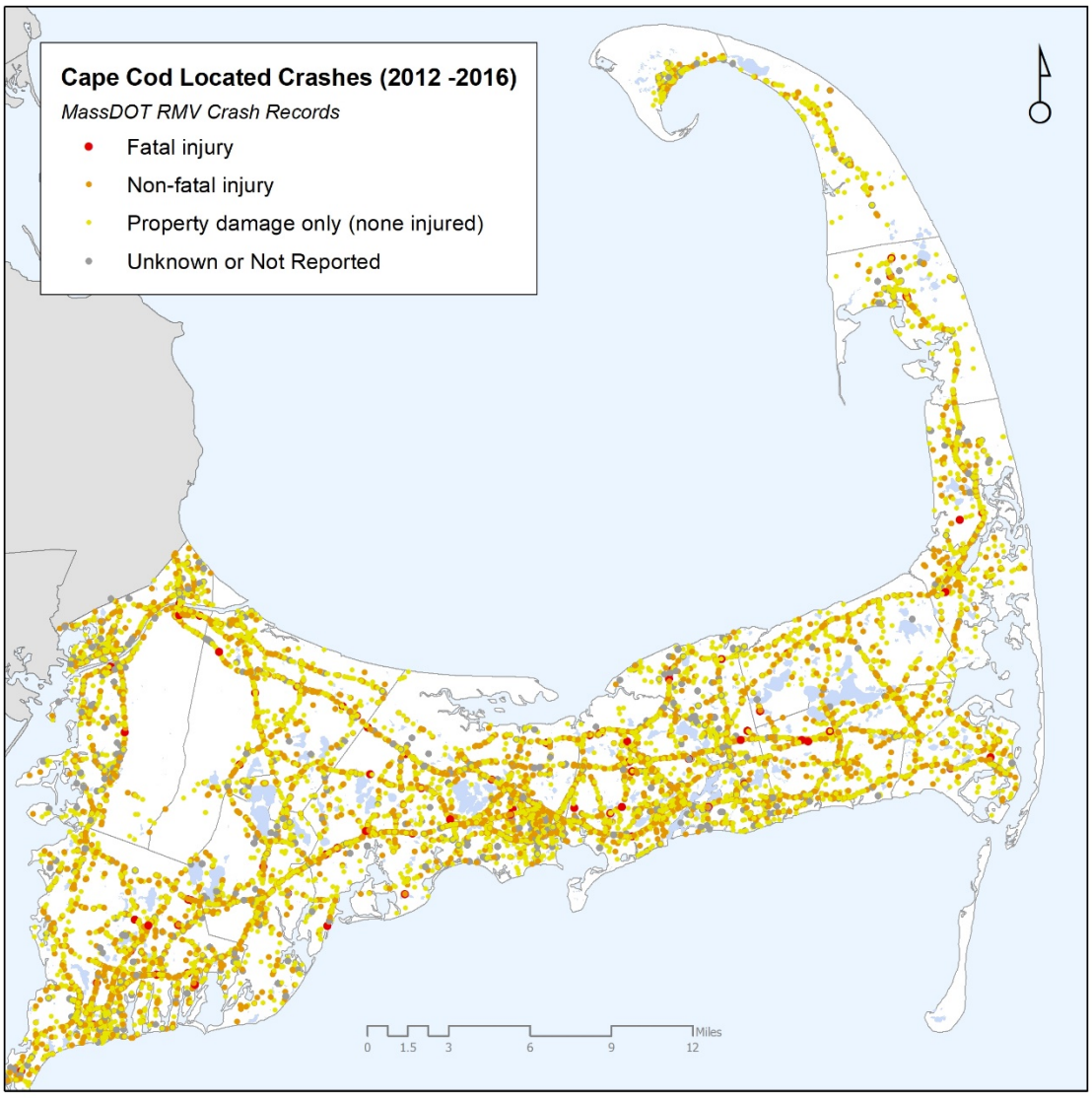


FIGURE 1. Cape Cod Located Crashes 2012-2016

(Source: MassDOT Crash Records)

TABLE 1. Top Locations Based on Number of Crashes

Rank Crashes	Town	Location	Crash Count	EPDO	Crash Rate	EPDO Rate
1	Dennis	Route 134 (East-West Dennis Road) at Patriot Square/Market Place	170	254	3.6	5.4
2	Barnstable	Route 28 (Falmouth Road) and Bearses Way	153	285	3.2	5.9
3	Barnstable	Route 28 (Iyannough Road) at Yarmouth Road	136	260	3.0	5.7
4	Yarmouth	Route 28 at Old Main Street/North Main Street	106	212	3.7	7.5
5	Dennis	Route 134 (East-West Dennis Road) at Upper County Road	105	181	2.6	4.4
6	Falmouth	Route 28 (East Falmouth Highway) at Old Meeting House Road/Davisville Road	104	216	3.7	7.6
7	Barnstable	Route 132 (Iyannough Road) at Bearses Way	98	194	2.1	4.2
8	Dennis	Route 134 (East-West Dennis Road) at Theophilus F. Smith Road	87	131	2.2	3.3
9	Barnstable	Route 132 (Iyannough Road) at Cape Cod Mall/Capetown Plaza	80	140	1.6	2.8
10	Mashpee	Route 151 (Nathan Ellis Highway) at Old Barnstable Road	73	145	1.8	3.5
11	Falmouth	Route 28 (Falmouth Road) at Trotting Park Road	66	106	3.1	4.9
12	Barnstable	Route 28 (Falmouth Road) at Osterville-West Barnstable Road	64	136	1.7	3.6
13	Falmouth	Route 151 (Nathan Ellis Highway) at Sandwich Road	63	179	1.8	5.0
14	Barnstable	Route 28 (Falmouth Road) at Old Stage Road/Camp Opoechee Road	61	141	1.2	2.8
15	Barnstable	Route 28 (Falmouth Road) at Putnam Avenue	58	110	1.7	3.2
16	Barnstable	Route 28 (Falmouth Road) at Cotuit Road/Prince Avenue	58	134	1.3	3.1
17	Barnstable	Route 132 (Iyannough Road) at Independence Drive	55	123	1.3	2.8
18	Barnstable	Route 28 (Falmouth Road) and Pitchers Way	52	165	1.5	4.6
19	Bourne	Meetinghouse Lane at State Road/Canal Street	52	92	2.1	3.8
20	Mashpee	Route 151 (Nathan Ellis Highway) at Job's Fishing Road	51	115	1.5	3.3
21	Barnstable	Route 132 (Iyannough Road) at Phinneys Lane	51	95	0.8	1.5
22	Falmouth	Route 28 (Davis Straits) at Dillingham Avenue/Spring Bars Road	48	80	2.3	3.9
23	Yarmouth	Route 28 at East Main Street	46	74	1.2	2.0
24	Barnstable	Route 28 (Falmouth Road) at Strawberry Hill Road	46	94	1.6	3.2
25	Dennis	Route 28 (Main Street) at Route 134 (East-West Dennis Road)/Swan River Road	46	66	1.5	2.2
26	Bourne	Route 6 (Scenic Highway) at Nightingale Road	46	78	1.0	1.7
27	Yarmouth	Station Avenue at White's Path/Workshop Road	45	77	1.0	1.7
28	Barnstable	Route 28 (Falmouth Road) at Phinneys Lane	44	108	1.1	2.6
29	Barnstable	Route 28 (Falmouth Road) at Mary Dunn Way	44	96	1.3	2.8
30	Harwich	Route 39 (Orleans-Harwich Road) at Pleasant Bay Road	44	124	3.4	9.6
31	Falmouth	Route 28 (Main Street) at Scranton Avenue	43	79	1.8	3.4
32	Mashpee	Route 151 (Nathan Ellis Highway) at Ninigret Avenue	43	87	1.4	2.8
33	Barnstable	West Main Street at Barnstable High School Entrance	42	86	2.0	4.1
34	Barnstable	Route 28 (Falmouth Road) at Centerville Shopping Center	42	90	0.8	1.7
35	Mashpee	Route 28 (Falmouth Road) at Orchard Road/Asher's Path	41	65	1.4	2.2
36	Falmouth	Route 28 (Palmer Avenue) at Jones Road/Ter Heun Drive	40	80	1.4	2.8
37	Mashpee	Route 151 (Nathan Ellis Highway) at Market Street	40	68	1.2	2.1
38	Barnstable	South Street at Ocean Street/Old Colony Road	40	88	1.5	3.4
39	Dennis	Route 134 (East-West Dennis Road) at Bob Crowell Road/Hemlock Lane	40	76	1.1	2.0
40	Yarmouth	Route 28 at Higgins Crowell Road/Berry Avenue	38	82	1.3	2.8
41	Sandwich	Quaker Meeting House Road at Cotuit Road	38	62	1.3	2.2
42	Mashpee	Route 151 (Nathan Ellis Highway) at Algonquin Avenue	38	94	1.5	3.8
43	Mashpee	Route 130 (Main Street) at Great Neck Road N	38	70	1.9	3.5
44	Wellfleet	Route 6 at Main Street	38	66	1.6	2.7
45	Falmouth	Route 151 (Nathan Ellis Highway) at Currier Road	37	110	1.0	3.0
46	Falmouth	Jones Road at Gifford Street	36	76	1.3	2.8
47	Barnstable	Route 28 (Falmouth Road) at Lincoln Road	36	96	1.7	4.6
48	Mashpee	Route 28 at Job's Fishing Road/Donna's Lane	35	67	0.8	1.4
49	Falmouth	Spring Bars Road at Worcester Court	35	71	2.2	4.5
50	Barnstable	Route 28 (Falmouth Road) at Bell Tower Mall	35	75	0.7	1.4

Source: MassDOT Crash Records 2012-2016

TABLE 2. Top Locations Based on Equivalent Property Damage Only

Rank EPDO	Town	Location	Crash Count	EPDO	Crash Rate	EPDO Rate
1	Barnstable	Route 28 (Falmouth Road) and Bearses Way	153	285	3.2	5.9
2	Barnstable	Route 28 (Iyannough Road) at Yarmouth Road	136	260	3.0	5.7
3	Dennis	Route 134 (East-West Dennis Road) at Patriot Square/Market Place	170	254	3.6	5.4
4	Falmouth	Route 28 (East Falmouth Highway) at Old Meeting House Road/Davisville Road	104	216	3.7	7.6
5	Yarmouth	Route 28 at Old Main Street/North Main Street	106	212	3.7	7.5
6	Barnstable	Route 132 (Iyannough Road) at Bearses Way	98	194	2.1	4.2
7	Dennis	Route 134 (East-West Dennis Road) at Upper County Road	105	181	2.6	4.4
8	Falmouth	Route 151 (Nathan Ellis Highway) at Sandwich Road	63	179	1.8	5.0
9	Barnstable	Route 28 (Falmouth Road) and Pitchers Way	52	165	1.5	4.6
10	Mashpee	Route 151 (Nathan Ellis Highway) at Old Barnstable Road	73	145	1.8	3.5
11	Barnstable	Route 28 (Falmouth Road) at Old Stage Road/Camp Opoechee Road	61	141	1.2	2.8
12	Barnstable	Route 132 (Iyannough Road) at Cape Cod Mall/Capetown Plaza	80	140	1.6	2.8
13	Barnstable	Route 28 (Falmouth Road) at Osterville-West Barnstable Road	64	136	1.7	3.6
14	Barnstable	Route 28 (Falmouth Road) at Cotuit Road/Prince Avenue	58	134	1.3	3.1
15	Dennis	Route 134 (East-West Dennis Road) at Theophilus F. Smith Road	87	131	2.2	3.3
16	Harwich	Route 39 (Orleans-Harwich Road) at Pleasant Bay Road	44	124	3.4	9.6
17	Barnstable	Route 132 (Iyannough Road) at Independence Drive	55	123	1.3	2.8
18	Mashpee	Route 151 (Nathan Ellis Highway) at Job's Fishing Road	51	115	1.5	3.3
19	Barnstable	Route 28 (Falmouth Road) at Putnam Avenue	58	110	1.7	3.2
20	Falmouth	Route 151 (Nathan Ellis Highway) at Currier Road	37	110	1.0	3.0
21	Barnstable	Route 28 (Falmouth Road) at Phinneys Lane	44	108	1.1	2.6
22	Falmouth	Route 28 (Falmouth Road) at Trotting Park Road	66	106	3.1	4.9
23	Barnstable	Route 28 (Falmouth Road) at Mary Dunn Way	44	96	1.3	2.8
24	Barnstable	Route 28 (Falmouth Road) at Lincoln Road	36	96	1.7	4.6
25	Barnstable	Route 132 (Iyannough Road) at Phinneys Lane	51	95	0.8	1.5
26	Mashpee	Route 151 (Nathan Ellis Highway) at Algonquin Avenue	38	94	1.5	3.8
27	Barnstable	Route 28 (Falmouth Road) at Strawberry Hill Road	46	94	1.6	3.2
28	Bourne	Meetinghouse Lane at State Road/Canal Street	52	92	2.1	3.8
29	Barnstable	Route 28 (Falmouth Road) at Centerville Shopping Center	42	90	0.8	1.7
30	Mashpee	Great Neck Road N at Old Barnstable Road	28	88	1.2	3.8
31	Barnstable	South Street at Ocean Street/Old Colony Road	40	88	1.5	3.4
32	Falmouth	Sandwich Road at Brick Kiln Road	31	87	1.3	3.7
33	Mashpee	Route 151 (Nathan Ellis Highway) at Ninigret Avenue	43	87	1.4	2.8
34	Barnstable	Route 132 (Iyannough Road) at Shootflying Hill Road	34	86	0.7	1.9
35	Barnstable	West Main Street at Barnstable High School Entrance	42	86	2.0	4.1
36	Yarmouth	Route 28 at Camp Street	32	84	0.8	2.2
37	Barnstable	Route 132 (Iyannough Road) at Attucks Lane	31	84	0.6	1.5
38	Barnstable	Route 28 (Falmouth Road) at Stub Toe Road	29	82	0.7	2.1
39	Yarmouth	Route 28 at Higgins Crowell Road/Berry Avenue	38	82	1.3	2.8
40	Falmouth	Route 28 (Palmer Avenue) at Jones Road/Ter Heun Drive	40	80	1.4	2.8
41	Falmouth	Route 28 (Davis Straits) at Dillingham Avenue/Spring Bars Road	48	80	2.3	3.9
42	Barnstable	Phinneys Lane at Old Strawberry Hill Road	23	79	1.4	4.9
43	Falmouth	Route 28 (Main Street) at Scranton Avenue	43	79	1.8	3.4
44	Barnstable	Route 28 (Falmouth Road) at Lumbert Mill Road	34	78	0.8	1.9
45	Bourne	Route 6 (Scenic Highway) at Nightingale Road	46	78	1.0	1.7
46	Yarmouth	Station Avenue at White's Path/Workshop Road	45	77	1.0	1.7
47	Barnstable	West Main Street at Pitchers Way	33	77	0.9	2.1
48	Falmouth	Jones Road at Gifford Street	36	76	1.3	2.8
49	Dennis	Route 134 (East-West Dennis Road) at Bob Crowell Road/Hemlock Lane	40	76	1.1	2.0
50	Barnstable	Route 28 (Falmouth Road) at Bell Tower Mall	35	75	0.7	1.4

Source: MassDOT Crash Records 2012-2016

TABLE 3. Top Locations based on Crash Rate

Rank Crashes/ MEV	Town	Location	Crash Count	EPDO	Crash Rate	EPDO Rate
1	Yarmouth	Route 28 at Old Main Street/North Main Street	106	212	3.7	7.5
2	Falmouth	Route 28 (East Falmouth Highway) at Old Meeting House Road/Davisville Road	104	216	3.7	7.6
3	Dennis	Route 134 (East-West Dennis Road) at Patriot Square/Market Place	170	254	3.6	5.4
4	Harwich	Route 39 (Orleans-Harwich Road) at Pleasant Bay Road	44	124	3.4	9.6
5	Barnstable	Route 28 (Falmouth Road) and Bearses Way	153	285	3.2	5.9
6	Falmouth	Route 28 (Falmouth Road) at Trotting Park Road	66	106	3.1	4.9
7	Barnstable	Route 28 (Iyannough Road) at Yarmouth Road	136	260	3.0	5.7
8	Dennis	Route 134 (East-West Dennis Road) at Upper County Road	105	181	2.6	4.4
9	Brewster	Route 124 (Harwich Road) at Tubman Road	23	39	2.4	4.0
10	Falmouth	Route 28 (Davis Straits) at Dillingham Avenue/Spring Bars Road	48	80	2.3	3.9
11	Falmouth	Spring Bars Road at Worcester Court	35	71	2.2	4.5
12	Dennis	Route 134 (East-West Dennis Road) at Theophilus F. Smith Road	87	131	2.2	3.3
13	Yarmouth	Forest Road at Old Town House Road	32	48	2.1	3.2
14	Bourne	Meetinghouse Lane at State Road/Canal Street	52	92	2.1	3.8
15	Barnstable	Route 132 (Iyannough Road) at Bearses Way	98	194	2.1	4.2
16	Barnstable	South Street at High School Road	31	63	2.1	4.3
17	Barnstable	Route 132 (Iyannough Road) at Cape Cod Community College N. Entrance	23	47	2.0	4.2
18	Barnstable	West Main Street at Barnstable High School Entrance	42	86	2.0	4.1
19	Barnstable	Stevens Street at Bassett Lane	29	65	2.0	4.4
20	Barnstable	Barnstable Road at Charles Street/Center Street	30	54	2.0	3.5
21	Mashpee	Route 130 (Main Street) at Great Neck Road N	38	70	1.9	3.5
22	Falmouth	Route 28 (Main Street) at Scranton Avenue	43	79	1.8	3.4
23	Mashpee	Great Neck Road N at Quashnet Road	30	54	1.8	3.2
24	Falmouth	Route 151 (Nathan Ellis Highway) at Sandwich Road	63	179	1.8	5.0
25	Mashpee	Route 151 (Nathan Ellis Highway) at Old Barnstable Road	73	145	1.8	3.5
26	Barnstable	Route 28 (Falmouth Road) at Lincoln Road	36	96	1.7	4.6
27	Barnstable	Main Street at High School Road Extension	28	48	1.7	2.9
28	Barnstable	Route 28 (Falmouth Road) at Osterville-West Barnstable Road	64	136	1.7	3.6
29	Barnstable	Route 28 (Falmouth Road) at Putnam Avenue	58	110	1.7	3.2
30	Barnstable	Route 132 (Iyannough Road) at Cape Cod Mall/Capetown Plaza	80	140	1.6	2.8
31	Barnstable	Route 28 (Falmouth Road) at Strawberry Hill Road	46	94	1.6	3.2
32	Wellfleet	Route 6 at Main Street	38	66	1.6	2.7
33	Barnstable	South Street at Ocean Street/Old Colony Road	40	88	1.5	3.4
34	Dennis	Route 28 (Main Street) at Route 134 (East-West Dennis Road)/Swan River Road	46	66	1.5	2.2
35	Mashpee	Route 151 (Nathan Ellis Highway) at Algonquin Avenue	38	94	1.5	3.8
36	Sandwich	Route 6A (Old King's Highway) at Route 130/Tupper Road	26	62	1.5	3.5
37	Mashpee	Route 151 (Nathan Ellis Highway) at Job's Fishing Road	51	115	1.5	3.3
38	Falmouth	Route 151 (Nathan Ellis Highway) at Cloverfields Way/Sam Turner Road/Boxberry Hill Road	21	57	1.5	4.0
39	Barnstable	Route 28 (Falmouth Road) and Pitchers Way	52	165	1.5	4.6
40	Barnstable	Phinneys Lane at Old Strawberry Hill Road	23	79	1.4	4.9
41	Dennis	Route 28 (Main Street) at Depot Street	26	58	1.4	3.2
42	Mashpee	Route 28 (Falmouth Road) at Orchard Road/Asher's Path	41	65	1.4	2.2
43	Falmouth	Route 28 (Palmer Avenue) at Jones Road/Ter Heun Drive	40	80	1.4	2.8
44	Mashpee	Route 151 (Nathan Ellis Highway) at Ninigret Avenue	43	87	1.4	2.8
45	Sandwich	Quaker Meeting House Road at Cotuit Road	38	62	1.3	2.2
46	Falmouth	Jones Road at Gifford Street	36	76	1.3	2.8
47	Sandwich	Route 6A at Quacker Meeting House Road/Spring Hill Road	28	48	1.3	2.3
48	Barnstable	Route 28 (Falmouth Road) at Cotuit Road/Prince Avenue	58	134	1.3	3.1
49	Falmouth	Sandwich Road at Brick Kiln Road	31	87	1.3	3.7
50	Yarmouth	Route 28 at Higgins Crowell Road/Berry Avenue	38	82	1.3	2.8

Source: MassDOT Crash Records 2012-2016

TABLE 4. Top Locations based on EPDO Rate

1	Harwich	Route 39 (Orleans-Harwich Road) at Pleasant Bay Road	44	124	3.4	9.6
2	Falmouth	Route 28 (East Falmouth Highway) at Old Meeting House Road/Davisville Road	104	216	3.7	7.6
3	Yarmouth	Route 28 at Old Main Street/North Main Street	106	212	3.7	7.5
4	Barnstable	Route 28 (Falmouth Road) and Bearses Way	153	285	3.2	5.9
5	Barnstable	Route 28 (Iyannough Road) at Yarmouth Road	136	260	3.0	5.7
6	Dennis	Route 134 (East-West Dennis Road) at Patriot Square/Market Place	170	254	3.6	5.4
7	Falmouth	Route 151 (Nathan Ellis Highway) at Sandwich Road	63	179	1.8	5.0
8	Falmouth	Route 28 (Falmouth Road) at Trotting Park Road	66	106	3.1	4.9
9	Barnstable	Phinneys Lane at Old Strawberry Hill Road	23	79	1.4	4.9
10	Barnstable	Route 28 (Falmouth Road) and Pitchers Way	52	165	1.5	4.6
11	Barnstable	Route 28 (Falmouth Road) at Lincoln Road	36	96	1.7	4.6
12	Falmouth	Spring Bars Road at Worcester Court	35	71	2.2	4.5
13	Barnstable	Stevens Street at Bassett Lane	29	65	2.0	4.4
14	Dennis	Route 134 (East-West Dennis Road) at Upper County Road	105	181	2.6	4.4
15	Barnstable	South Street at High School Road	31	63	2.1	4.3
16	Barnstable	Route 132 (Iyannough Road) at Bearses Way	98	194	2.1	4.2
17	Barnstable	Route 132 (Iyannough Road) at Cape Cod Community College N. Entrance	23	47	2.0	4.2
18	Barnstable	West Main Street at Barnstable High School Entrance	42	86	2.0	4.1
19	Brewster	Route 124 (Harwich Road) at Tubman Road	23	39	2.4	4.0
20	Falmouth	Route 151 (Nathan Ellis Highway) at Cloverfields Way/Sam Turner Road/Boxberry Hill Road	21	57	1.5	4.0
21	Falmouth	Old Barnstable Road at Carriage Shop Road	18	62	1.1	3.9
22	Falmouth	Route 28 (Davis Straits) at Dillingham Avenue/Spring Bars Road	48	80	2.3	3.9
23	Mashpee	Great Neck Road N at Old Barnstable Road	28	88	1.2	3.8
24	Bourne	Meetinghouse Lane at State Road/Canal Street	52	92	2.1	3.8
25	Mashpee	Route 151 (Nathan Ellis Highway) at Algonquin Avenue	38	94	1.5	3.8
26	Falmouth	Sandwich Road at Brick Kiln Road	31	87	1.3	3.7
27	Barnstable	Route 28 (Falmouth Road) at Osterville-West Barnstable Road	64	136	1.7	3.6
28	Sandwich	Route 6A (Old King's Highway) at Route 130/Tupper Road	26	62	1.5	3.5
29	Barnstable	Barnstable Road at Charles Street/Center Street	30	54	2.0	3.5
30	Mashpee	Route 151 (Nathan Ellis Highway) at Old Barnstable Road	73	145	1.8	3.5
31	Mashpee	Route 130 (Main Street) at Great Neck Road N	38	70	1.9	3.5
32	Barnstable	South Street at Ocean Street/Old Colony Road	40	88	1.5	3.4
33	Falmouth	Route 28 (Main Street) at Scranton Avenue	43	79	1.8	3.4
34	Mashpee	Route 151 (Nathan Ellis Highway) at Job's Fishing Road	51	115	1.5	3.3
35	Dennis	Route 134 (East-West Dennis Road) at Theophilus F. Smith Road	87	131	2.2	3.3
36	Barnstable	Route 28 (Falmouth Road) at Strawberry Hill Road	46	94	1.6	3.2
37	Yarmouth	Forest Road at Old Town House Road	32	48	2.1	3.2
38	Mashpee	Great Neck Road N at Quashnet Road	30	54	1.8	3.2
39	Barnstable	Route 28 (Falmouth Road) at Putnam Avenue	58	110	1.7	3.2
40	Dennis	Route 28 (Main Street) at Depot Street	26	58	1.4	3.2
41	Barnstable	Route 28 (Falmouth Road) at Cotuit Road/Prince Avenue	58	134	1.3	3.1
42	Falmouth	Route 151 (Nathan Ellis Highway) at Currier Road	37	110	1.0	3.0
43	Barnstable	Main Street at High School Road Extension	28	48	1.7	2.9
44	Yarmouth	West Yarmouth Road at Buck Island Road	22	59	1.1	2.9
45	Yarmouth	Route 28 at Higgins Crowell Road/Berry Avenue	38	82	1.3	2.8
46	Barnstable	Route 132 (Iyannough Road) at Cape Cod Mall/Capetown Plaza	80	140	1.6	2.8
47	Falmouth	Jones Road at Gifford Street	36	76	1.3	2.8
48	Falmouth	Route 28 (Waquoit Highway) at Metoxit Road	20	60	0.9	2.8
49	Barnstable	Route 132 (Iyannough Road) at Independence Drive	55	123	1.3	2.8
50	Barnstable	Route 28 (Falmouth Road) at Old Stage Road/Camp Opoechee Road	61	141	1.2	2.8

Source: MassDOT Crash Records 2012-2016

CAPE COD DRIVERS

The demographics of Cape Cod depict a typical year-round resident that is older than the average population in the United States. Over 59% of Cape Cod's population as reported in the U.S Census Bureau (2017 estimates) was aged 45 or older (as compared to 40% for the national average). This trend is continuing. The migration of retirees to Cape Cod and a stable aging population is not being offset by new younger residents or births. With the trend toward an older population in America, the Federal Highway Administration (FHWA) has recognized that older drivers require special consideration. This recognition is demonstrated in the publication of several recent documents and a special address to Congress by the National Highway Traffic and Safety Administration (NHTSA). The focus in both cases was on the behavior of older drivers with respect to the "typical" driver. The NHTSA address also included issues related to younger drivers. Recommended guidelines for design standards that will help accommodate the needs of an older driver are also included in the literature.

Another dimension defining the unique character of Cape Cod drivers is their seasonal nature. The Cape is inundated with visitors, many of whom are not familiar with Cape Cod roads. Drivers that are used to city streets or parkways are also subjected to the scenic rural roads that compose a significant part of the Cape's character. The physical nature of these roadways may be somewhat unfamiliar to off-Cape drivers, leading to safety concerns.

Among the many drivers that visit to the Cape in the summer are a large number of younger motorists. These drivers have less experience in familiar surroundings and even less in the Cape driving environment. This coupled with a "vacation attitude" requires more considerations for roadway design and planning. These considerations must also be balanced with the natural qualities that bring people to Cape Cod.

The Senior Driver

A large and increasing percentage of Cape drivers are 65 and older. According to the Census Bureau 2017 estimates, 28% or 60,860 residents of Barnstable County are aged 65 or older. This steadily increasing proportion of drivers will experience declining vision, slowed decision making and reaction times, additional difficulty in dividing attention between potential conflicts and traffic information, and reductions in strength, flexibility, and overall fitness. In many cases, these difficulties will outweigh the additional experience that older drivers have operating an automobile. The large majority of drivers who suffer from age-related driving deficiencies are not aware that a problem exists.

The overwhelming majority of Cape intersections are at grade. Based on FHWA crash statistics for drivers, 80 years and older, more than 50% of fatal crashes occur at intersections. This is compared with 24% or less for drivers up to age 50. According to studies referenced in the FHWA *Older Driver Highway Design Handbook* (1998), as driver age increases, involvement in intersection crashes

increase as well. Older drivers typically experience two types of at-grade intersection difficulties. Left turn difficulties result from lack of sufficient caution and poor positioning on the road during the turn. Stopping difficulties result from a failure to stop, a failure to make complete stops at stop signs, and stops that were abrupt. Comparing survey responses of drivers aged 66 to 68 with those aged 77 and older, showed that the older group had more difficulty following pavement markings, finding the beginning of left hand turn lanes, and driving across intersections. Another study of older drivers indicated that the most challenging aspect of intersection negotiation is making left turns during the green, left turn permitted signal phase. The protected "green arrow" left hand turn has been identified as an important improvement for older drivers.

Nighttime driving is associated with a higher crash risk for all drivers; however the effect of aging on vision is particularly compounded by the effect of darkness. The aging process causes gradual declines in a variety of ways; acuity, contrast sensitivity, glare-recovery, and peripheral vision. These declining functions make night driving particularly difficult for older drivers. The ability to notice and recognize objects at night and in low-light conditions such as dawn, dusk, rain, fog, haze, and snow is a chief concern. According to studies referenced in the FHWA handbook show that between age 20 and age 70, contrast sensitivity is reduced by a factor of three. This places the typical older driver at a relative disadvantage in low-light conditions. As expected, older drivers require significantly larger letters to read unfamiliar signs. Current sign standards are based on an assumed vision of 20/25 (as opposed to "perfect" 20/20 vision). Older drivers require a standard of 20/46.

Older Driver recommendations

Based on the issues associated with the older driving population on Cape Cod the following suggestions are recommended as considerations for Cape Cod roadway improvements. Many of these recommendations are from FHWA's *Older Driver Highway Design Handbook* (1998). This resource should be consulted for more details. The Older Driver Handbook includes other recommendations and guidelines that should be considered in Cape roadway design but their use should also be tempered to maintain the character of Cape Cod's roadways.

Recommendations to accommodate older drivers include:

- Considering protected left turn phases into signalized intersections;
- Maintaining delineation through more frequent restriping and street cleaning;
- Improving signage standards to include larger lettering;
- Improving lighting level standards, in particular at intersections. Consider placing utilities underground and installing breakaway safety poles for lighting;
- Considering "all red" phases for signalized intersections;
- Establishing driver education programs for older drivers; and
- Providing education on other options for mobility.

Mobility programs to provide alternatives to driving also need to be improved. This was a major topic at Cape Cod's February 2000 Transit Summit. The recommendations from the Summit included a "dual challenge" of reducing auto dependency and meeting the needs of the transit dependent and those in need of human services. By improving mobility options, significant safety improvements may be realized

Young Drivers

Safety and age-related crash statistics indicate that younger drivers' (under age 25) problems exceed those of any other age group. The shorter average trip length of older drivers is accompanied by a higher frequency of fatal crashes. Young drivers outnumber, out-travel, out-crash, and die more frequently by any other measure. There are slight differences between younger and older drivers in the types of crashes they experience. For example, young drivers have more speeding and alcohol-related crashes. Younger drivers' crashes are frequently caused by inexperience, poor judgment, and risk taking, while older drivers' crashes are more often related to reduced physical and cognitive capabilities.

Although most crashes occur at intersections, young drivers show a greater tendency than other age groups to be involved in non-intersection crashes. According to NHTSA statistics, 43% of crashes by drivers age 15 to 24 are at non-intersection locations. That number reduces to 41% for drivers age 25 to 64 and 31% for drivers age 65 to 74.

Younger drivers are more prone to risk-taking behavior and are subject to influences of youth culture and peer pressure. Many of these characteristics are evident in young visitors to Cape Cod.

Younger Driver Recommendations

Recommendations to accommodate younger driver safety issues are divided between residents and visitors:

- Increased education for local young drivers.
- Additional enforcement and warnings during the busy traffic season to reach out to young visitor drivers.
- Develop and implement an advertising campaign and roadside signage reminding drivers that traffic and drunk-driving laws are strictly enforced on Cape Cod.

Additional Recommendations

Additional recommendations include:

- Better signage for visitors directing them to popular destinations (e.g., larger, well-located signs to direct patrons of the Hyannis Transportation Center may improve safety at the driveway on Route 28).
- Signage explaining the rotary "rules of the road" and similar information to be included in visitor brochures and Cape-related websites

THE CAPE COD ROADWAY

There are nearly 3,900 miles of roadways in Barnstable County. These include 574 miles of Arterials and 213 miles of Collectors. The remaining 3,076 miles included local roads and the many miles of unimproved ways. The typical posted speed limit on the Cape is less than 40 miles per hour (mph) and, on average, the roadways carry 175% more traffic in July and August than they do in January and February.

The character of Cape Cod's rural roads includes narrow lanes and a typical speed limit of 35 mph. Most roads do not have shoulders and bicycles must often share the lanes with motorists. Many of the older roads evolved from Native American trails and stagecoach routes. Roadway geometry is therefore less accommodating than current state and federal standards. Included in the goals of this Plan is the preservation of the scenic and rural character of Cape Cod's narrow, winding roads. However, this must be accompanied by a program of enforcement and education especially for the drivers that visit the Cape in the summer.

Safety Improvements through Intersection Modification

To help quantify the benefits of various safety treatments, several resources were consulted including *The Traffic Safety Toolbox: A Primer on Traffic Safety*, Chapter 28, Institute of Transportation Engineers, 2000; and *Prediction of the Expected Safety Performance of Rural Two-Lane Highways*, Chapter 5, Federal Highway Administration, 2000. These reports include discussions on various vehicular access treatments and predictions of "Accident Reduction."

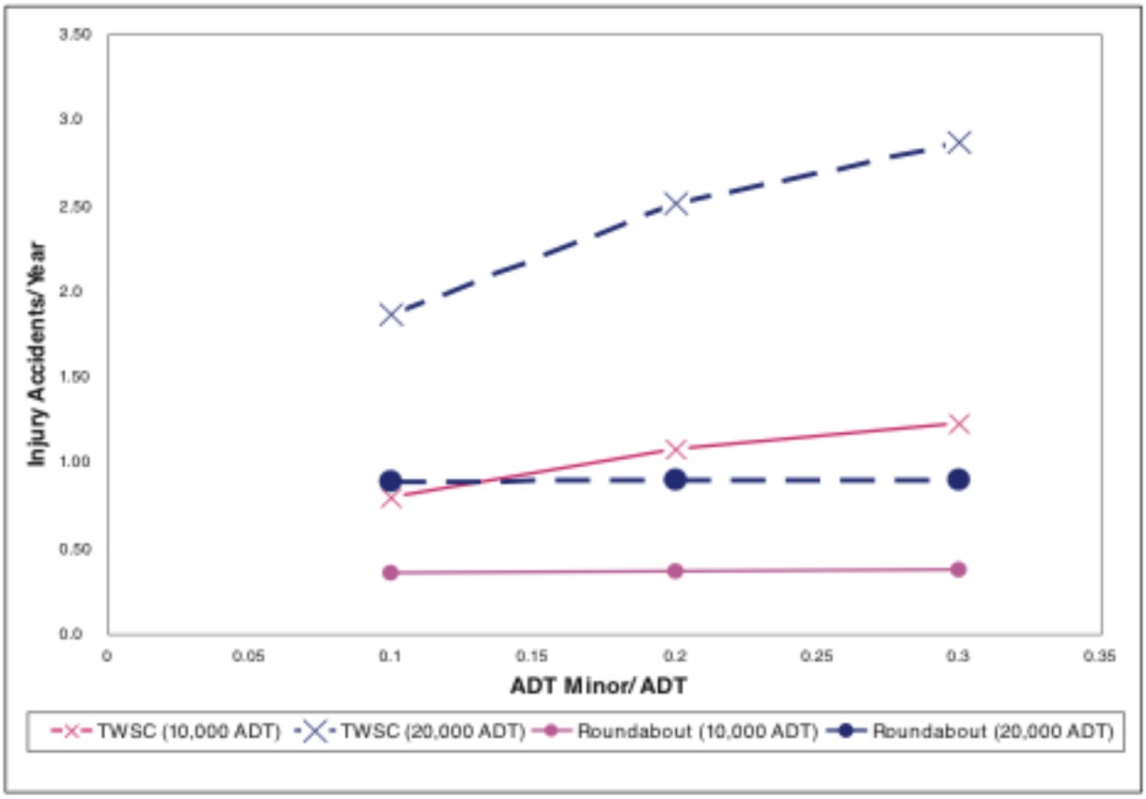
MODERN ROUNDABOUTS V. FOUR-WAY INTERSECTIONS

A roundabout is a type of circular intersection with specific design and traffic control features. These features include yield control of all entering traffic, channelized approaches, and appropriate geometric curvature to ensure that travel speeds on the circulatory roadway are typically less than 20 mph. The decision to install a roundabout as a safety improvement should be based on a demonstrated safety problem of a type susceptible to correction by a roundabout. FHWA's *Roundabouts: an Informational Guide*, (FHWA –RD-00-067, June 2000) provides a review of the safety improvements afforded by roundabouts. For example, safety problems that could be improved by a roundabout include:

- High rates of crashes such as right angle, head-on, left/through, U-turns, etc.
- High crash severity that could be reduced by slower speeds
- Site visibility problems that reduce the effectiveness of stop sign control
- Inadequate separation of movements, especially on single-lane approaches

The following figure shows that roundabouts have fewer annual injury crashes than rural two-way stop-controlled (TWSC) intersections, and the total number of crashes at roundabouts is relatively insensitive to minor street demand volumes.

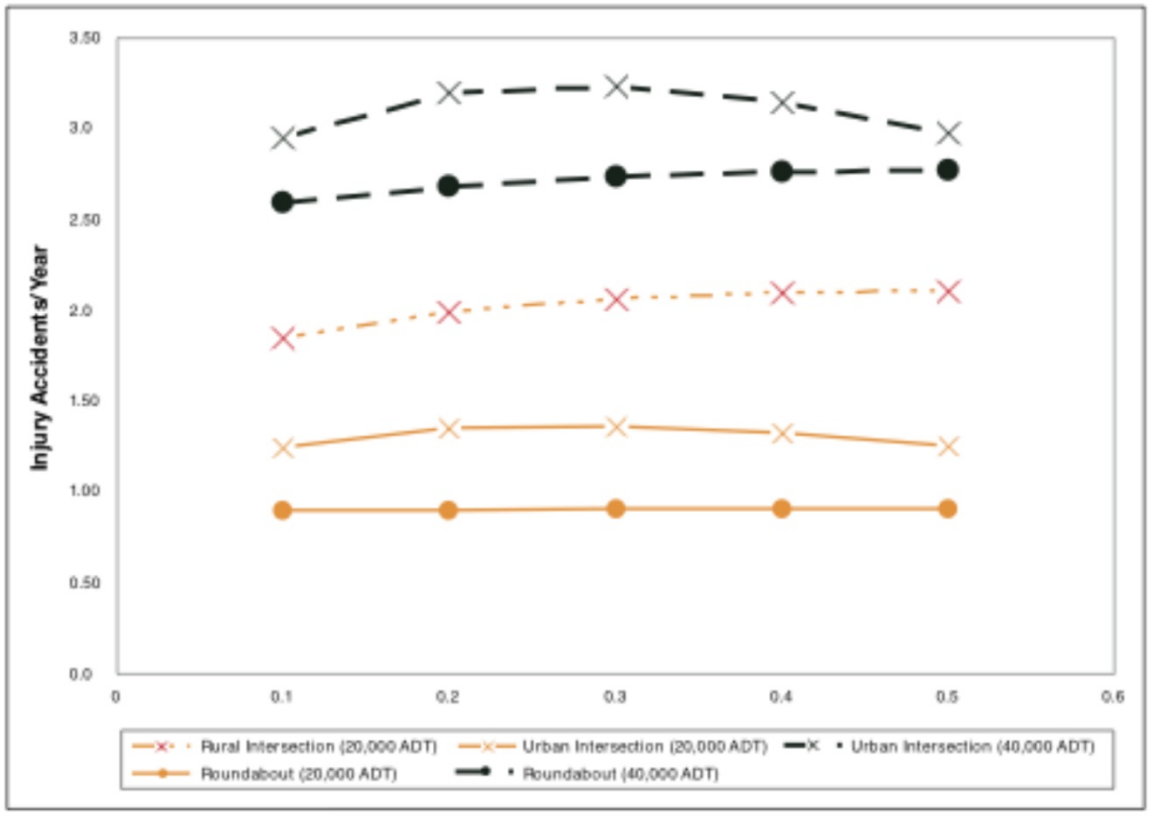
FIGURE 2. Comparison of Predicted Roundabout Injury Crashes with Rural 2-Way Stop - Controlled Intersections



(Source: FHWA)

The Roundabout guide also includes information to compare roundabouts to signalized intersections. The following figure shows that roundabouts have fewer injury accidents per year than signalized intersections, particularly in rural areas. At volumes greater than 50,000 vehicles per day (shown on the figure as "ADT" – average daily traffic), urban roundabout safety may be comparable to that of urban signalized intersections.

FIGURE 3. Comparison of Predicted Injury Crashes for Single-Lane and Double-Lane Roundabouts with Rural or Urban Signalized Intersections



(Source: FHWA)

Safety-Related Technology

Improved technology provides new options for the enforcement of traffic laws and speed control. The Insurance Institute for Highway Safety (IIHS) and the FHWA have favorable reviews of applications such as red-light enforcement and photo radar. These techniques should be coupled with education as well, since a goal is to improve safety by deterring unsafe driving. The greatest benefit of these techniques has been a "halo effect" whereby drivers are complying with traffic laws in un-monitored locations as well as those where the technology has been installed.

RED LIGHT ENFORCEMENT

According to IIHS, nationwide, drivers who run red lights are responsible for 260,000 crashes each year. Of these, approximately 750 are fatal. Motorists are more likely to be injured in crashes involving red light running than in other types of crashes: occupant injuries occurred in 45% of red light running crashes compared with 30% for other crash types. Enforcing red light laws by traditional means poses special difficulties for police, who in most cases must follow a violating vehicle through a red light to stop it. This poses a danger to motorists, pedestrians, as well as the officers. Red light running violations typically decrease by as much as 60% at intersections where cameras automatically enforce the law.

In areas where red light cameras have been installed as well as areas without cameras, most drivers have supported the use of red light cameras, 80% in cities with cameras and 76% in cities without.

OPTICOM SYSTEM

Many of the Cape's signalized intersections are equipped with the Opticom priority-based pre-emption system. Opticom includes infrared detection equipment installed adjacent to the signal heads. When an emergency vehicle (ambulance, fire engine, etc.) equipped with an Opticom infrared emitter approaches the intersection, the detector notifies the signal controller and a green phase is maintained for the emergency vehicle (other approaches are held under a red phase). Signal pre-emption is vital for emergency responders to safely and quickly travel to incident sites. Agencies responsible for intersection signal maintenance should also ensure continuous operation of the Opticom system. Upgrades to existing signals and new signal installations should be equipped with Opticom.

Coordination with Massachusetts' Strategic Highway Safety Plan

Building on the success of the 2006 "Strategic Highway Safety Plan" (SHSP), MassDOT released an update of the document in September 2013. The updated Massachusetts SHSP[1] is consistent with requirements outlined in the most recent Federal transportation legislation, Moving Ahead for Progress in the 21st Century (MAP-21). One requirement is to establish goals and performance measures. Goals in the Massachusetts SHSP include:

- Reduce motor vehicle fatalities and hospitalizations by 20 percent in the five-year period following adoption of the SHSP (Short-Term Goal);
- Halve the number of fatalities and serious injuries by 2030 (Interim Goal); and
- Move Toward Zero Deaths and eliminate fatalities and serious injuries on the roadways (Long-Term Goal).

The Massachusetts Strategic Highway Safety Plan update is organized to focus attention on the traffic safety problems exhibited by each emphasis area. An emphasis area is classified as Strategic, Proactive, or Emerging based on the number of fatalities, hospitalizations, or incapacitating injuries resulting from crashes related to the emphasis area.

[1] http://www.massdot.state.ma.us/Portals/8/docs/traffic/shsp/shspSeptember2013.pdf

STRATEGIC EMPHASIS AREAS

Each emphasis area listed here represents at least 10 percent of annual fatalities or severe injuries on Massachusetts roadways.[2]

- Impaired Driving
- Young Drivers
- Intersections
- Older Drivers
- Lane Departures
- Pedestrians
- Occupant Protection
- Motorcycles
- Speeding/Aggressive Driving

PROACTIVE EMPHASIS AREAS

Each of these emphasis areas represents less than 10 percent of annual fatalities or severe injuries on Massachusetts roadways. Strategies included within each emphasis area are designed to ensure fatalities and severe injuries for these areas are further reduced even though it may be more difficult in areas already experiencing very low crash rates.

- Bicycles
- At-Grade Crossings
- Truck/Bus-Involved Crashes
- Safety of Persons Working on Roadways

EMERGING EMPHASIS AREAS

These emphasis areas focus on continuously improving the data systems used to analyze traffic safety patterns and generate data on safety topics where the data currently are inconclusive.

- Data Systems
- Driver Inattention[3]

The safety goals, objectives, and performance measures of the Cape Cod RTP were developed to support the goals and performance measures of the Massachusetts SHSP.

[2] Severe injuries are based on injuries requiring hospitalizations or defined as incapacitating injuries by police reporting

[3] http://www.massdot.state.ma.us/Portals/8/docs/traffic/shsp/shspSeptember2013.pdf

Policies & Strategies

In the interest of preserving the character of Cape Cod and achieving safer roads, non-traditional methods of improving safety must be explored. The following recommendations for improving safety will not substantially change the character of the roadways on Cape Cod. Recommendations consistent with the Massachusetts' *Strategic Highway Safety Plan's* (SHSP) "Emphasis Areas" are indicated with an asterisk.

- Consider Traffic Calming measures such as 4-way stop signs and roundabouts.*
- Improve striping maintenance and use of more reflective treatments.*
- Increase enforcement and police presence on rural roads such as 6A.*
- Investigate photo enforcement of red light running and speeding.*
- Make physical improvements that improve the safety and security of the transportation network a priority.*
- Continuously monitor the condition of the transportation system to ensure that it is safe to travel on all modes throughout Cape Cod.*
- Continue to identify the high priority safety locations throughout Cape Cod and then determine measures to increase safety at those locations.*
- Separate high and low speed travel modes, so that those traveling at slower speeds, such as bicycles and pedestrians, do not conflict with those traveling at higher speeds, such as rail and automobile traffic.*
- Encourage safe use of the transportation network through public awareness campaigns, promoting such things as seatbelts for motorists and helmet use for bicyclists.*

*Supports Massachusetts' Strategic Highway Improvement Program "Emphasis Areas"

Community Character/Safety Issues

The following recommendations are intended to preserve community character while addressing safety issues.

- Use alternative guardrail treatments, such as steel Corten or steel backed timber - all on wood posts, where guardrail is necessary.
- Consider roundabouts as an alternative to signalized intersections.
- Continue policies that disallow business logo signs on state highways in Barnstable County.
- Preserve all state owned/town owned land along roads and other transportation rights-of-way, for transportation uses and/or conservation.
- Prohibit pruning and clearing within state rights-of-way except for safety purposes, such as making sight distance improvements.
- Encourage ornamental signal posts and mast arms.
- Develop design guidelines for Cape Cod to document preferred treatments in design concepts and details.

- Encourage use of simulated brick crosswalks and other contrasting materials in order to provide drivers with better visual identification. Crosswalks should be considered for all projects to accommodate walking as a viable mode of travel.
- Promote "Share the Road" and other bicycle education programs.

ROADWAY SAFETY AUDITS

Since 2011 there have been twenty-one Road Safety Audits (RSAs) completed for locations throughout Cape Cod. The Audit process is overseen by MassDOT and brings together community officials and others in an intensive review of high-crash locations' operational and geometric deficiencies. Each audit includes a review of traffic and crash information, an onsite field review.

It is important to note that the RSAs were borne directly from the U.S. DOT & MassDOT's Highway Safety Improvement Program (HSIP). This program was formally created by the federal transportation legislation (SAFETEA-LU) and these efforts are intended to align the use of data to identify the most serious safety deficiencies responsible for fatal accidents and serious injuries. All RSAs can be located at www.capecodcommission.org/safety.

TABLE 5. List of Cape Cod Road Safety Audits from 2011 to 2019

TOWN	YEAR	LOCATION
Barnstable	2012	Route 28 at Osterville-West Barnstable Road
	2012	Route 28 (Iyannough Road) at Yarmouth Road
	2014	Route 132 (Iyannough Road) at Cape Cod Community College
	2015	Route 28 (Falmouth Road) at Strawberry Hill Road
	2019	Route 28 (Falmouth Road at Route 132 (Iyannough Road)- Airport Rotary
	2019	Route 6A at Mary Dunn Road/Indian Trail
Bourne	2012	Sandwich Road at Cranberry Highway
	2013	Route 28 between Bourne and Otis Rotary
Brewster	2011	Route 124 (Harwich Road) at Tubman Road
Dennis	2012	Analysis of High-Crash Locations in Dennisport*
Eastham	2012	Route 6 at Governor Prence Road
	2017	Route 6 at Nauset Road/Wampum Lane
Falmouth	2011	Sandwich Road: Carriage Shop Road to Hatchville Road
	2017	Route 28 Corridor
	2018	Route 151 Corridor
Harwich	2016	Route 39 (Orleans Road) at Pleasant Bay Road
Mashpee	2014	Route 151 (Nathan Ellis HWY) at Old Barnstable Road
	2016	Mashpee Wampanoag Tribe Road Safety Audit
	2018	Route 151 at Ninigret Avenue, Algonquin Avenue, and Job's Fishing Road
Wellfleet	2016	Route 6 at Main Street
	2012	Wellfleet Route 6 Safety Study*
Yarmouth	2011	Union Street/Station Avenue: Route 6 Ramps
	2013	Route 6A: Willow Street to Union Street

**denotes study was not an RSA, but rather a safety study. Safety studies offer similar recommendations as an RSA does.*

According to the Federal Highway Administration, an RSA is "the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users." RSA include a list of recommendations in a multitude of categories from Signage, Lighting, and Roadway Configuration. Below is an example list of what an RSA multidisciplinary team is observing when visiting the location.

FIGURE 4. Road Safety Audit Prompt List

GEOMETRIC DESIGN	
Issue	**Comment**
A. Speed – (Design Speed; Speed Limit & Zoning; Sight Distance; Overtaking	
Are there speed-related issues along the corridor? Please consider the following elements: • Horizontal and vertical alignment; • Posted and advisory speeds • Driver compliance with speed limits • Approximate sight distance • Safe passing opportunities	
B. Road alignment and cross section	
With respect to the roadway alignment and cross-section please consider the appropriateness of the following elements: • Functional class (Urban Principal Arterial) • Delineation of alignment; • Widths (lanes, shoulders, medians); • Sight distance for access points; • Cross-slopes • Curbs and gutters • Drainage features	
C. Intersections	
For intersections along the corridor please consider all potential safety issues. Some specific considerations should include the following: • Intersections fit alignment (i.e. curvature) • Traffic control devices alert motorists as necessary • Sight distance and sight lines seem appropriate • Vehicles can safely slow/stop for turns • Conflict point management • Adequate spacing for various vehicle types • Capacity problems that result in safety problems	
D. Auxiliary lanes	
• Do auxiliary lanes appear to be adequate? • Could the taper locations and alignments be causing safety deficiencies? • Are shoulder widths at merges causing safety deficiencies?	

MULTIMODAL TRANSPORTATION SAFETY

Safety information is readily available for several modes of travel. The following sections provide safety issue details on several transportation modes. Bicyclist and Pedestrian safety are discussed in the RTP Technical Appendix "Bicycle/Pedestrian Safety Plan."

Public Transit Safety

Public transit vehicles are generally considered to operate at a higher level of safety in comparison to private automobiles. Drivers are required to have higher qualifications and are subject to strict safety guidelines. The Cape Cod Regional Transit Authority tracks any incidents related to their vehicles and reports that are required. The latest data is available on request.

Air Travel Safety

The National Transportation Safety Board has assembled a database of safety incidents at Cape Cod airports (Hyannis, Falmouth, and Chatham). During the years 2012-2016, seven incidents were listed for these airports. These data are summarized in the following table:

TABLE 6. Hyannis Air Travel Safety Incidents

YEAR	FATAL	NON-FATAL	INCIDENT
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	1	0

(Source: National Transportation Safety Board)

TABLE 7. Falmouth Air Travel Safety Incidents

YEAR	FATAL	NON-FATAL	INCIDENT
2012	1	1	0
2013	0	0	0
2014	0	1	0
2015	0	1	0
2016	0	0	0

(Source: National Transportation Safety Board)

TABLE 8. Chatham Air Travel Safety Incidents

YEAR	FATAL	NON-FATAL	INCIDENT
2012	0	0	0
2013	0	0	0
2014	0	1	0
2015	0	0	0
2016	0	1	0

(Source: National Transportation Safety Board)

Summary of General Transportation Safety Recommendations

- Work with state and local agencies to improve the accuracy and timeliness (e.g., within 12 months of the end of each year) of crash data
- Consider protected left turn phases into signalized intersections
- Maintain delineation through more frequent restriping and street cleaning
- Improve signage standards to include larger lettering
- Improve lighting level standards, in particular at intersections. Consider placing utilities underground and installing breakaway safety poles for lighting
- Consider extension of "all red" phases for signalized intersections
- Establish driver education programs for older drivers
- Provide education on other options for mobility
- Increase education for local young drivers
- Support additional enforcement and warnings during busy traffic season to reach out to young visitor drivers
- Develop and implement an advertising campaign and roadside signage reminding drivers that traffic and drunk driving laws are strictly enforced on Cape Cod.
- Provide better signage for visitors directing them to popular destinations
- Install signage explaining the rotary "rules of the road" and disseminate similar information to be included in visitor brochures and Cape-related websites
- Consider conversion of conventional intersections (signalized or unsignalized) which have high crash rates to roundabouts
- Promote the use of red-light cameras at high crash rate signalized intersections
- Support road designs which are estimated to reduce crashes and improve safety for all users

INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) are applications of advanced technology in the field of transportation, with the goals of increasing operation efficiency and capacity, improving safety, reducing environmental costs, and enhancing personal mobility. A policy of Cape Cod MPO is to advocate and endorse the consideration of Intelligent Transportation Systems solutions for transportation problems as a routine part of the transportation planning process. As a stakeholder in the Southeastern Massachusetts Regional ITS Architecture, the Cape Cod MPO is committed to continuing an active role in these ITS systems. This includes maintaining channels of communication between the Cape Cod Commission and other stakeholders, including but not limited to: the MassDOT; the Southeastern Regional Planning and Economic Development District (SRPEDD); the Old Colony Planning Council (OCPC), and the Cape Cod Regional Transit Authority (CCRTA). A regional ITS architecture is a framework that defines component systems and their interconnections. Successful ITS deployment requires an approach to planning, implementation, and operations that emphasizes collaboration between relevant entities and compatibility of individual systems. The regional architecture is a mechanism design to ensure this collaboration and compatibility occurs. Inputs into ITS systems can involve any variety of a range of collection devices, including:

- Loop detectors in the pavement and sophisticated ground level radar systems are able to collect real time traffic volume and speed data.
- Video equipment is often used to monitor the transportation system, which is useful in allowing system operators to immediately detect areas of congestion that may be forming. It is also used to detect incidents such as crashes and disabled vehicles, in turn accelerating emergency dispatch and the overall incident management process. Video surveillance is also a useful tool for security and incident management in transit vehicles and around stops and terminals.
- Automatic vehicle locators (AVL) on board transit vehicles, emergency response vehicles, and roadside assistance vehicles allow operators to know where vehicles are in real time that allows for more efficient dispatch and adjustment of traffic controls if necessary.
- Automated Fare Payment Systems that allow riders on transit systems to pay electronically using a "smart card" (prepaid balance) or in the future conventional credit/debit cards rather than cash.
- Transmitters onboard transit and emergency vehicles alike are used to pre-empt traffic signals ahead or to alert travelers at a transit stop that the vehicle is approaching.
- Remote weather stations and Doppler radar provide real time weather conditions occurring throughout the transportation network, and provide alerts regarding events such as icing or flooding that may be occurring. These are some of the technological applications that can be utilized for managing the regional transportation network. All of this information travels over both hard-wired and wireless communication systems to systems that manipulate the data and

distribute it to users of the transportation system. End users of ITS system and the output media include:

- Transit Operation Centers that monitor the transit system through video feed, radio communications, and AVL signals, allowing operators to make improved decisions regarding security, dispatch, and incident management.
- Traffic Operation Centers that monitor the roadway system through reports from systems like loop detection and video feed, allowing operators to make improved decisions regarding congestion management, incident management, security, and maintenance management.
- Traveler Information Services such as the national 511 System or SmarTraveler locally, which receive traffic data from traffic and transit operations centers and distribute it to users via hard line and wireless communications.
- Variable Message Signage that allows operators from traffic and transit operation centers to instantly relay messages to users on the system.
- Kiosks that receive information from transit operation centers and transit vehicles, relaying it to users of the transit system.

MassDOT owns and operates several permanent variable message signs and a large fleet of portable variable message signs throughout the Commonwealth. Permanent stations are used to alert drivers to major events affecting locations such as the Route 128 belt and Interstate 93, as well as the tunnels. Portable variable message sign trailers are located throughout the state and are able to be dispatched to locations wherever and whenever needed. Often they are used for a major local event, such as a road race or sidewalk carnival. They can also be dispatched for major unplanned events, such as a chemical spill that forces an extended closure of a highway. All variable message signs are controlled from the MassDOT Traffic Operations Center in South Boston. MassDOT is using automated vehicle locators on their snow removal and highway maintenance fleet, increasing the efficiency of dispatch of resources to where they are needed. Travelers are able to obtain real time traffic conditions for highways in the Commonwealth, including highway approaches to the Cape such as Routes 3 and 495 as well as the Cape Cod Canal bridges, through SmartRoutes phone and web links, and will soon be available through a statewide 511 system and MassDOT website.

CAPE COD COMMISSION'S LOCATION-SPECIFIC SAFETY STUDIES

The Cape Cod Commission has completed several safety-related studies. The following is a summary of the locations that were studied and highlights of recommended safety improvements. Full reports are available on the internet:

www.capecodcommission.org/safety

CONCLUSION

Safety is the highest priority goal of the Regional Transportation Plan. The Cape's transportation system should ensure that travelers and their possessions will arrive at their destinations unharmed and undamaged. Travelers should be educated regarding transportation regulations and traffic laws, and these must also be enforced to prevent the improper use of the transportation system. The importance of safety requires a spectrum of strategies including education, enforcement, and engineering.

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix D: Security

JULY 15,
2019

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Technical Appendix D: Security

The transportation system must prepare for natural disasters, such as hurricanes or flooding events. Moreover, post-September 11th, protecting users from man-made hazards is also a priority, as indicated by the increased emphasis on security in federal and state transportation regulations and guidelines. A variety of local, county, state, and federal agencies play key roles in ensuring the security of the Cape Cod transportation system.

EMERGENCY TRAFFIC PLANNING

The most frequently identified security concern is the threat of a weather-related event such as a hurricane. In many cases, Cape Cod residents and visitors "shelter in place," a term that refers to staying in homes or local shelters that are supplied with food, water, etc.

Residents should heed warnings of public safety officials and evacuate accordingly. A danger occurs out of panic when vast numbers of people get into their automobiles with the idea that they should "evacuate," clogging up the roadway network. These traffic jams pose a threat to those who truly need to access the network (persons with health problems, injuries, etc.). In the event of a mass exodus from Cape Cod (due to major weather-related, radiation event, etc.), planning is underway by the Barnstable County Emergency Planning Committee (BCREPC), in coordination with the Massachusetts Emergency Management Agency and implementation organizations such as the Massachusetts State Police and MassDOT. Planning for large-scale traffic flows leaving Cape Cod requires coordination with neighboring regions. For example, routing Cape Cod traffic to I-195 West during an impending hurricane may bring motorists closer to the hurricane's landfall. Landfall predictions always include some uncertainty, such as the exact time and path of impact. When the path of a storm is projected in a wide, imprecise area it can make the evacuation route itself a potentially hazardous area.

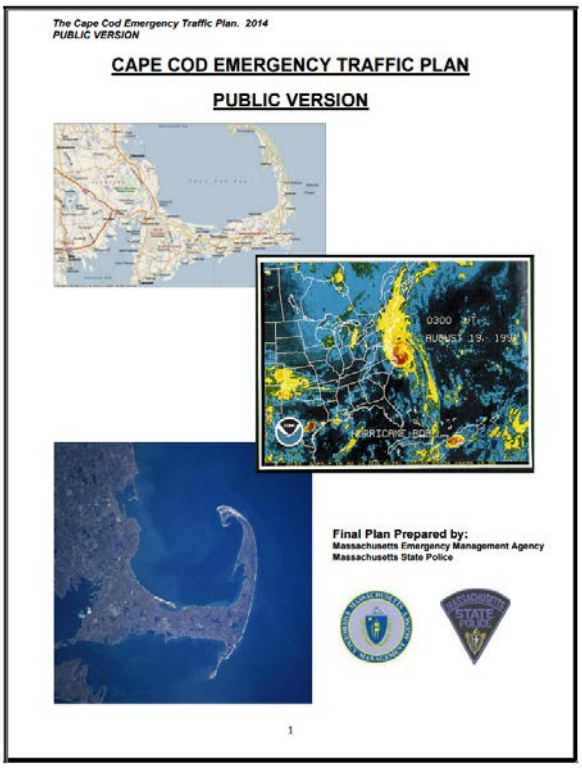


FIGURE 1. Cape Cod Emergency Traffic Plan

The "Cape Cod Emergency Traffic Plan" (ETP) has been developed by the Massachusetts State Police in cooperation with the Massachusetts Emergency Management Agency (MEMA) and several other agencies to facilitate the egress of a high volume of traffic from Cape Cod in the event of a hurricane, particularly during peak tourist season.[1] The design of the ETP is based upon the need to eliminate the causes of congestion in the area of the Bourne and Sagamore Bridges and the main arteries leading up to them, Routes 6 and 28. The following is a general outline of the plan's implementation:

- As traffic levels build before the hurricane arrives, direct access to and from off-Cape locations will be restricted at the bridges in order to allow vehicles to continue north from the bridges unimpeded.
- At higher traffic levels, and as bridge flows warrant (e.g., lower demand at Bourne Bridge than at Sagamore Bridge), traffic on Route 6 destined for Routes 25 & 495 would be diverted through the Massachusetts Military Reservation (MMR).
- When sustained winds reach 80 mph, the bridges will be closed and the motorists will have the option of going to designated emergency parking areas in the MMR and to be shuttled to shelter in the MMR.

The ready availability of advance information to the public is a vital component necessary to maximize the efficiency of the ETP. Traffic will flow only as fast as the slowest vehicles are traveling. The following measures are planned in order to provide a high level of public knowledge regarding the various aspects and the changes in traffic patterns that will be encountered during the ETP:

- Signage: MassDOT will erect ETP signs giving advance notice of all detours and changes in traffic flow. The signs will include a radio frequency for ETP information.
- FM Radio Broadcast: Changes in traffic patterns will be announced on WQRC (99.9 MHz). WQRC will continually play a variety of pre-recorded instructions geared to address the various phases of the ETP.
- Internet: Detour instructions and maps will be available on the Internet from the state police web site: www.state.ma.us/msp

SHELTER IN PLACE SCENARIOS

It is extremely important that the public is informed of the need to evacuate only under a set of specific scenarios. For example, Hurricane events may only threaten certain coastal areas. For those residents in the affected areas, public safety officials would likely direct evacuees to local or

[1] http://www.mass.gov/eopss/docs/mema/cape-cod-emergency-traffic-plan.pdf

regional shelters. By 'sheltering in place' or relocating to the nearest emergency shelter, impacts on the roadway network are minimized, freeing up capacity for emergency responders.

Sheltering in place and waiting instructions from emergency response officials is also the recommended course of action during a radiation event as detailed on the BCREPC Radiation Emergency Reference Sheet[2]. This reference sheet details the proper actions to take in response the radioactive emergency at the Pilgrim Nuclear Power Station (PNPS) located in Plymouth. Cape Cod lies outside of the 10-mile radius Emergency Planning Zone so no emergency evacuation is planned should there be a radiation emergency at the PNPS. If a radiation event occurs, individuals on Cape Cod should get inside, stay inside, and stay tuned. For more information about preparedness, sheltering, and radiation emergencies, visit the following websites:

- Centers for Disease Control: https://emergency.cdc.gov/radiation/index.asp
- MEMA: www.mass.gov/mema
- BCREPC: www.bcrepc.org/prepare

PUBLIC TRANSPORTATION SECURITY

Security of public transportation systems has been regarded with greater importance in recent years. The Federal Transit Administration (FTA) provides guidance and a wide variety of strategies to maintain and improve security. It is also important to note that public transit may serve an important role in evacuation (e.g., moving residents from nursing homes etc. to shelters). Also, verification and certification of public transit employees in security procedures is important to assure response capability.

AIR TRAVEL SECURITY

Security for travel by air is a primary function of the Transportation Security Administration (TSA). The TSA has been required to make a number of improvements to aviation security. The improvements included that by November 19, 2002, screening of individuals and property in the United States would be conducted by TSA employees and companies under contract with TSA. Federal law also requires enhanced qualifications training and testing of individuals who perform screening functions. It requires that Federal law enforcement officers be present at screening locations. More information is available at: http://www.tsa.gov

[2] http://www.bcrepc.org/wp-content/uploads/2014/09/BCREPC_Radiation-Emergency-Reference-Sheet-092214.pdf

INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) technologies are applied to vehicles and roadways that perform communications, data processing, traffic control, surveillance, navigation, sensing, and various other functions that aid in the management of the security process. ITS elements, such as traffic cameras, signal preemption devices and Variable Message Boards (VMB), would provide timely responses for emergency vehicles and the ability to monitor evacuations during times of natural, or other disasters.

The Massachusetts Department of Transportation's Traffic Operations Center (TOC) is located in South Boston. The TOC's primary mission is traffic incident management throughout the Commonwealth of Massachusetts. The MTOC is the headquarters for the application of Intelligent Transportation Systems (ITS) around the state. From the MTOC, reports on traffic incidents are relayed to the involved MassDOT district office, which assigns the necessary personnel and equipment, required to abate the incident.

The TOC integrates information from the Cape Cod Canal Area Intelligent Transportation System. The Cape's system will include about 10 adjustable (point-tilt-zoom) high definition cameras and supplemental speed detectors and fixed-view webcams. This system will yield travel time and incident data to travelers and emergency responders.

Security is a high priority goal of the Regional Transportation Plan. The transportation system must be prepared for natural disasters, such as hurricanes. This plan also adds emphasis on security from federal and state transportation regulations and guidelines.

The most pressing security issue facing Cape Cod is the heavy volume of traffic departing during weather events, such as impending hurricanes.

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2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix E: Freight

JULY 15,
2019

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Technical Appendix E: Freight

Freight transportation is the movement of goods in large quantity. The movements are generally split up in to four major categories, truck, rail, and water and air freight, each with their own types of contracts. On Cape Cod, freight travel mostly reaches its end point for goods to be bought by consumers or movements are internal to the region. Few goods are exported. Cape Cod exports including solid waste, parcel post and seafood products which are explored in the study.

Local economies typically depend on freight transportation to export and import goods. The freight industry on Cape Cod is different because of the seasonal tourist industry, abundance of waterways, and historic culture. The tourist industry creates more demand on goods in the summer months; the waterways create opportunities for sea freight, but also require crossings for truck freight. The historic character and geographic placement of Cape Cod limits the ability to create large-scale freight infrastructure.

In 2014 the Cape Cod Commission performed a regional freight study. The purpose of the study was to provide recommendations to improve freight flexibility, speed-efficiency, fuel-efficiency, and safety by transport method. The study overviewed freight infrastructure, featured data from a survey presented to local freight businesses, and finally provided recommendations for the improvement of freight operations and infrastructure on Cape Cod.

TRUCK FREIGHT

Vehicle transportation is the primary method of freight distribution in the region. It is important to note that all vehicle traffic on Cape Cod experiences two different seasons, extreme congestion in the summer or peak season, and normal congestion in the remaining seasons or off season.

Maintaining properly designed intersection controls is important for the freight industry to ensure safety, and minimize delays. At signalized intersections this may mean optimizing signal timing and phases and providing turning lanes. At roundabouts this may mean the provision of truck aprons adjacent to the center island and on exit/entrance shoulders.

The maximum legal speed limit on most Cape Cod highways is 55 mph. Exceptions include Route 3 (60 mph) and Route 25 (65 mph) in Bourne. The speed limits on the road affect the movement of freight traffic by governing travel time. In order to encourage truck freight to remain on the limited-access portions of freeways such as the Mid Cape Highway, an evaluation of safety and free-flow travel speeds should be performed – possibly leading to an increase in some speed limits (perhaps limited to daytime hours).

Freight traffic is affected by congestion on Cape Cod. At certain times of the year freight carriers are not able to make trips due to travel times. Congestion is found on almost all Cape Cod roads in the summer. Year round, heaviest travel occurs on the Cape Cod Canal roads and bridges and the Mid-Cape Highway. High volumes of traffic are also found on the roads leading to and within the Hyannis area (an area that receives/sends goods to/from many businesses, institutions such as Cape Cod Hospital and multimodal facilities such as the ferry ports).

Freight traffic has the most significant effect on pavement conditions because of the stress that truck weight causes on the pavement. Freight is also affected by pavement conditions because potholes and other pavement issues can create safety hazards for truck drivers and cargo. Pavement condition data are collected with the intent to keep the roadway system in the best possible condition with the most efficient use of available funds.

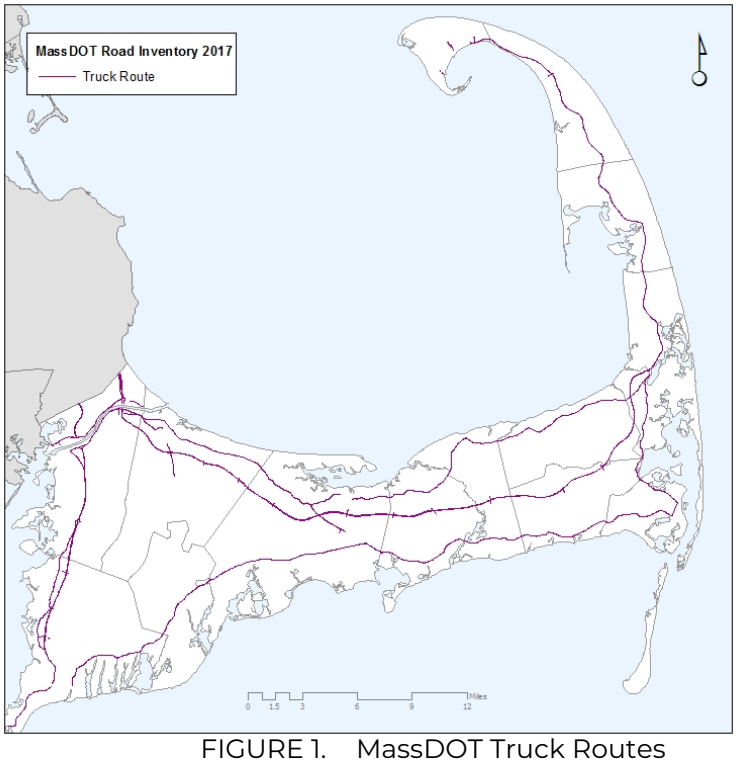


FIGURE 1. MassDOT Truck Routes

Source: Massachusetts Roadway Inventory File 2017

MassDOT Designated Truck Routes

There are over 200 miles of designated truck routes under state authority (shown in Figure 1). These routes are only located on state highways (e.g., Routes 6, 28, 6A and 28A). There are several obvious gaps in connectivity, due to changes in jurisdiction (e.g., Route 6A in Barnstable Village, Route 28 in downtown Falmouth). Other gaps in connectivity occur between the truck route network and intermodal facilities such as the ferry ports in Hyannis and Provincetown.

Critical Freight Corridors

In 2017, the Cape Cod MPO identified the following as Critical Freight Corridors which provide access and connection with the national freight network and important ports, public transportation facilities, or other intermodal freight facilities :

- Route 6 from Cahoon Hollow Road in Wellfleet to Whitmanville Road in Truro.
- Willow Street/Yarmouth Road from Route 6 in Yarmouth to Route 28 in Barnstable
- Route 28 in Barnstable from Yarmouth Road to Airport Rotary
- Route 132 in Barnstable from Airport Rotary to Attucks Way

Canal Bridges

The largest bottlenecks on Cape Cod occur at the canal bridges during the summer season. The Bourne Bridge and Sagamore Bridge permit vehicular travel over the Cape Cod Canal. Summer time delays at the canal bridges can sometimes be measured in hours. Because of the unreliable travel time associated with crossing the canal bridges many freight companies will not locate or deliver on Cape Cod.

The Bourne Bridge and Sagamore Bridge are both under the jurisdiction of the Army Corp of Engineers (ACOE). One or the other of the two highway bridges may have restrictions on lanes and heavy vehicles during several weeks of the year to accommodate painting and structural maintenance activities. While avoiding the heavy summer traffic season, these lane closures have been observed to result in traffic backups of several hours.

The Bourne and Sagamore bridges provide the only crossings of the Cape Cod Canal for motorists, pedestrians and cyclists. Maintained by the U.S. Army Corps of Engineers, the geometric design of each bridge includes a roadway width of 40 feet (four 10 foot wide lanes) flanked by a 6-foot wide sidewalk on one side and a 2-foot wide safety curb on the other. The roadways are separated from the sidewalks and safety curbs by 16-inch high vertical granite curbing.

The bridges first opened to traffic in 1935. Historic records indicate a general upward trend in the annual bridge crossings and this traffic is currently approaching 100,000 vehicles per average day. Over the decades, the bridges have been exposed to deicing salts, the effects of which include progressive deterioration of the concrete deck and some steel members of the bridges. These effects are compounded by the fact that the bridges are located near salt water. An additional maintenance activity is the periodic painting of the exposed steel portions of the bridges.

For certain maintenance activities, including repairs to the concrete deck, the worksite requires the closures of two lanes. The ACOE is committed to minimizing these conditions by avoiding daytime lane reductions during the summer months and limiting work to one bridge at a time.

The Army Corps of Engineers established a website and email notification system for major maintenance efforts on the bridges. By providing timely warnings of impending closures, travelers may adjust travel mode, choice of bridge crossing and approach routes, or timing. The bridges do need to be maintained in order to continue to provide safe passage to and from the region. Foul weather may interfere sometimes in the maintenance efforts, and as a result the schedule prolonged. Some further strategies to minimize impacts are listed below.

- Scheduling Maintenance Activities for Off-Peak Periods minimizes disruptions to traffic during heavy travel periods. The Army Corps is already making efforts to achieve this - and should continue to do so. To the greatest extent possible, lane closures should avoid summer months and daytime periods during the spring and fall.
- Intelligent Transportation Systems (ITS) is collection and dissemination of real-time information through means such as cameras and/or cell phone data collection. The information is available on the state traffic information website and 511 telephone system. This allows for travelers to check online or via cell phones on current traffic conditions at the bridges. Radio stations also look up and provide updates on bridge traffic. The Cape Cod Commission website provides links to transportation providers (www.capecodcommission.org) including a link to the ACOE website to provide travelers with the latest information on lane closures.
- Improve Transportation Alternatives to Offset Automobile Crossings by increasing express bus service, and improving marketing of bus and other alternatives. The marketing should inform travelers of the advantages of using alternatives and the disadvantages of driving during the lane closures. An additional strategy to enhance the attractiveness of buses and high-occupancy vehicles would be to allow travel on the shoulders (currently nonexistent on Route 6) of Routes 3, 6, 25, and 28 to bypass the queues (under police supervision). This concept would include construction of shoulders/breakdown lanes that could be used as a bus lane during peak times. This would encourage a shift from single-occupant vehicles and would likely result in an overall reduction of vehicles traveling through the lane closures.
- Traffic Management reduces traffic conflicts. During periods of traffic congestion at the Canal crossings, motorists seek alternate routes - regardless of whether or not such routes actually save travel time. In addition, such routings have effect on the capacity of the bridges, and may actually create bottlenecks in other locations such as the Exit One on-ramp at the approach of the Mid-Cape Highway westbound at the Sagamore Bridge. Techniques to be considered should include police officer traffic control, signage, and turn restrictions.

RAIL FREIGHT

Freight service is the major user of Cape Cod's rail network in addition to scenic excursions and weekend passenger service. The Commonwealth of Massachusetts, through MassDOT, still owns most railroad tracks on Cape Cod today. Massachusetts Coastal Railroad (a company of Cape Rail, Inc.) operates under contract to provide freight service.

Currently, the primary use of Cape Cod's rails is for transporting solid waste by Mass Coastal Railroad. Mass Coastal is a short line freight railroad serving Cape Cod and southeastern Massachusetts between Middleboro, Otis Air Force Base, Hyannis, and South Yarmouth. The majority of Cape Cod's solid waste is transported to the SEMASS trash-to-energy plant in Rochester, MA via Mass Coastal's Energy Train. Other freight Mass Coastal carries includes food, construction materials, chemicals, heavy equipment amongst many other things.

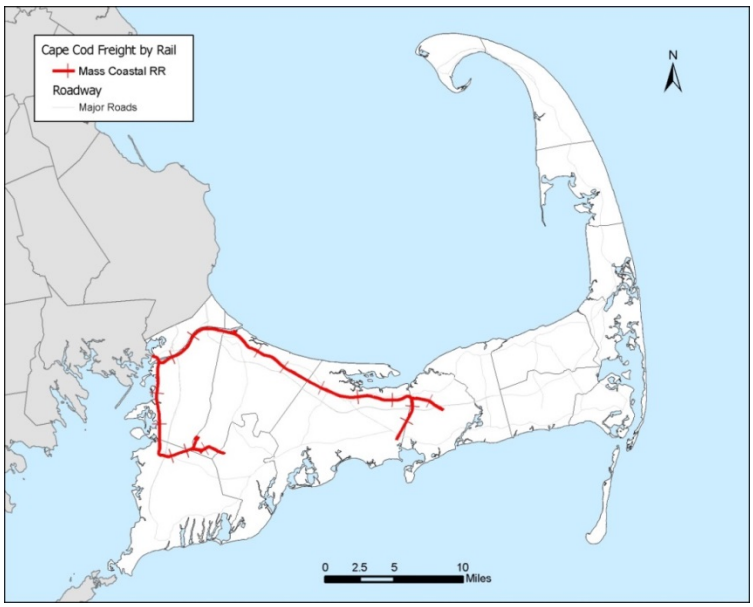


FIGURE 2. Cape Cod Rail Infrastructure

Rail Connectivity

Rail service has a long and rich history on Cape Cod. The region's early growth was in part brought about by the railroad. Many miles of usable track still exist on Cape Cod, intersecting the roads and waterways. MassDOT owns the majority of rail tracks on Cape Cod, but some tracks are owned by federal agencies. Currently though, only the Mass Coastal freight service, the Cape Cod Central Railroad scenic train service, and the Cape Flyer summer weekend passenger service operate on Cape Cod. Proposals currently exist to connect Buzzards Bay to Middleboro, which would give Cape passengers improved access to Boston. If freight rail service were to be expanded, upgrades would be necessary to the tracks, stations, and signals. Moreover, issues of accessibility, mobility and connectivity would need to be addressed. Funding for these improvements would need to be identified and secured. As many tracks are converted in bicycle paths, the future of rail on Cape Cod is still uncertain. A major advantage of rail freight is the movement of goods across the Cape Cod Canal without adding vehicle crossings to the congested highway bridges.

Cape Cod Commission staff met with a representative of Cape Cod's major rail operation: Mass Coastal Railroad. Mass Coastal operates the "Energy Train" transporting solid waste from the Yarmouth Transfer Station (and from the soon-to-close Otis transfer station at Joint Base Cape Cod)

to the Southeastern Massachusetts Resource Recovery Facility – "SEMASS"), and an excursion/tourist train identified as "Cape Cod Central Railroad." Freight issues and concerns affecting rail service highlighted at this meeting included:

- Energy Train service is affected by Cape Cod Canal rail bridge delays, and hours of operation at SEMASS and the Yarmouth transfer station
- Commercial marine shipping may have priority (especially eastbound in the canal – can restrict access to the rail bridge for over 1 ½ hours).
- The Otis transfer station will close in December 2014 resulting in:
- More Energy Train cars available for Yarmouth transfer station – resulting in fewer daily trips to SEMASS
- Opportunity to modify the Otis facility for trans-loading operations (e.g., propane, construction materials, etc.)
- Potential future rail shipments could include deliveries of construction materials to Hyannis.
- National (and global) freight trends are for containerization (freight is consolidated in large containers that can be stacked on ships or trains and then transported over the road by tractor trailers).
- Rail services between North Falmouth and Hyannis are restricted due to the absences of a "Y" rail connector in the vicinity of the rail bridge (currently, the rail bridge must be lowered and a train would have to partially cross the canal and then reverse)

WATER FREIGHT

Waterborne freight to and from Cape Cod uses a variety of vessel types and seaports. The primary form of public water transportation on Cape Cod is ferry service, carrying passengers between the mainland and the islands of Martha's Vineyard and Nantucket. A significant amount of freight is carried by water transportation as well. As a result, the region's seaports and channels are vital in addressing the economic and transportation needs of Cape Cod.

Cape Cod Seaports

Cape Cod has 586 miles of tidal coastline, with many inlets and bays that provide marine access to the land. Seaports have been constructed along several of these bays and inlets to facilitate the transfer of people and goods from water to land transportation. Significant Cape Cod seaports are recognized in reports by the Army Corps of Engineers, the agency that maintains many of them. These and other seaports are discussed in the Existing Conditions appendix.

Ferry Freight

The Steamship Authority records movements of trucks between Cape Cod and the Islands. Generally, these trucks are transporting goods from the mainland to the Islands. In 2013, truck movements exceeded 153,000 vehicles. The total number of trucks carried includes pick-up trucks, vans, and other commercial vehicles under 20' in overall length. In 2004, the Steamship Authority started classifying certain vehicles under 20' as trucks rather than automobiles. Some pick-up trucks and vans that were previously classified as automobiles are now being classified more consistently as trucks based on the make and model of the vehicle. SUVs, however, are still classified and counted as automobiles. This resulted in more trucks and fewer automobiles being carried starting in 2004. Also, the number of trucks in this category of under 20' represented 53% of the total trucks carried on the Woods Hole – Martha's Vineyard route and 36% of the total trucks carried on the Hyannis – Nantucket route during 2005. The numbers of trucks, automobiles, or passengers are reported as one-way segments or movements. A truck carried round trip is reported as two trucks carried. Roughly two-thirds of these shipments are made between Woods Hole and Martha's Vineyard. The remainder is made between Hyannis and Nantucket.

TABLE 1. Trucks Carried by Steamship Authority Ferries

Source: Steamship Authority

YEAR	TO AND FROM MARTHA'S VINEYARD	TO AND FROM NANTUCKET
2013	118,922	34,329
2012	112,958	39,657
2011	114,782	44,025
2010	116,461	49,547
2009	115,600	48,187
2008	98,393	44,537
2007	98,257	41,011
2006	103,939	40,175
2005	97,595	39,598
2004	87,166	40,799
2003	70,546	43,226

Channels

CAPE COD CANAL

The Cape Cod Canal is a significant aspect to freight infrastructure in the region. This channel allows safe passage from ports north and south of Cape Cod, relieving the hazard of navigation around the peninsula. Details on the Cape Cod Canal can be found in the Existing Conditions Sections.

The Cape Cod Canal is owned and operated by the Army Corps of Engineers. Over six thousand ships, tug and barge combinations and other large commercial vessels pass through the canal annually. In 2009 they carried over 8 million tons of cargo to ports along the east coast including 1.9 billion gallons of petroleum products and 380 million gallons of bio fuels.

WOODS HOLE CHANNEL

The Woods Hole Connects Buzzards Bay with Great Harbor in Woods Hole. Freight vessels traveling to Boston and points north can also use the channel on their way to the Cape Cod Canal. The channel is used by seasonal passenger ferries from New Bedford to Martha's Vineyard. As a result, the channel is heavily traveled.

NANTUCKET CHANNEL

The Nantucket Channel provides passage through the Nantucket Sound and between Cape Cod and the Islands. Ferries, ships navigating around the Cape, and other vessels used this channel.

FREIGHT SURVEY

The Cape Cod Commission sought input from users and providers of freight services on Cape Cod through an online questionnaire. The questionnaire included multiple-response and open-ended questions. The availability of the questionnaire was announced on the Cape Cod Commission and Cape Cod Chamber of Commerce websites and via a direct email announcement sent by the Cape Cod Chamber to its membership. Only seven responses were received as of the fall of 2014 and are summarized below

QUESTION 1: WHICH CAPE COD TOWN(S) IS YOUR COMPANY BASED IN?

Three respondents indicated Barnstable, two each for Bourne and Mashpee, and one each for Yarmouth and Provincetown.

QUESTION 2: WHAT TYPE OF BUSINESS DO YOU OPERATE?

There was one response in each of the following categories:

- Freight Shipper
- Entertainment/Recreation
- Manufacturing
- Professional Services

- Restaurant
- Other Retail

Comments included the statement "Cape Cargo we pickup and deliver freight on the Cape."

QUESTION 3: HOW DOES YOUR COMPANY USE FREIGHT?

Five responses indicated that their company imports/receives goods. There was one response each for "transport goods (I operate a shipping company)" and "other."

There was one comment: "ship and receive goods"

QUESTION 4: HOW FREQUENTLY DO YOU USE FREIGHT?

Responses were organized into three categories as follows:

Importing

- One response for greater than three times per day
- One response for one-two times per day
- Two responses for three-five times per week
- One response for one-two times per week
- One response for less than once per week

Exporting

- One response for less than once per week

Transporting

- One response for greater than three times per day
- One response for one-two times per day

QUESTION 5: WHERE DOES YOUR FREIGHT COME FROM OR WHERE DOES IT GO?

Responses were organized into three categories as follows:

Importing

- Five responses for "Off Cape" (mainland side of Cape Cod Canal)
- Two responses for "On Cape" (south/east of Cape Cod Canal)

Exporting

- No responses

Transporting

- One response for "Off Cape" (mainland side of Cape Cod Canal)
- Two responses for "On Cape" (south/east of Cape Cod Canal)
- One response for Islands (Nantucket or Martha's Vineyard)
- One response for International
- One response for Other

QUESTION 6: WHAT ARE SOME OF THE MAJOR COMMODITIES THAT YOUR COMPANY IMPORTS/EXPORTS/TRANSPORTS (OR RELIES UPON)?

This was an open-ended question that received seven responses as follows:

- Lighting products
- Parts for repair of our video games. Prizes for our customers. Paper products plates, cups, napkins, paper towels, etc.
- Hardware, paint & sundries, power tools, hand tools, locks, plumbing supplies, electrical supplies, fasteners, housewares, lawn and garden supplies, fertilizers, automotive supplies, propane, cleaning supplies.
- Green Coffee - Import Ship off Cape Roasted Coffee USPS and UPS Daily, also self deliver in our own truck to on Cape customers
- Cabinets flooring retail goods
- We transport all types of freight except perishables and food. General freight, household goods, furniture, items for internet purchases, freight to from the Islands
- Food, kitchen equipment, restaurant supplies

QUESTION 7: WHAT TYPES OF SHIPPING DOES YOUR COMPANY USE ON CAPE COD?

All seven responses indicated that they use road (trucking) for their shipping needs. One response also indicated the use of waterborne freight.

QUESTION 8: PLEASE IDENTIFY YOUR PRIMARY SHIPPING COMPANY (IF APPLICABLE):

There was one response each for the following shipping companies

- Cape Cod Express
- FedEx
- UPS

There were two responses that indicated "Other."

QUESTION 9: WHAT ISSUES REGARDING FREIGHT DO YOU HAVE (E.G., ROADWAY SAFETY, SPEED/FUEL EFFICIENCY, FLEXIBILITY, RELIABILITY)? HOW MAY THESE ISSUES BE ADDRESSED?

Responses included the following statements:

- Prices are so much higher for just 20 units
- Many carriers do not want to deliver to Cape Cod so they deliver to Cape Cod Express in Wareham who then delivers the freight locally. This adds time and the potential for damage.

QUESTION 10: WHAT TYPES OF POLICY CHANGES OR INVESTMENTS WOULD YOU SUPPORT OR NOT SUPPORT?

Responses were organized into a set of categories as follows:

Increase vehicular capacity across the Cape Cod Canal

- Tow responses were "Strongly Support"
- Two responses were "Neutral"

Rail investments

- Three responses were "Support"
- One response was "Neutral"
- One response was "Oppose"

Ferry ports (expansion or construction of new ports)

- Two responses were "Strongly Support"
- Three responses were "Support"
- One response was "Neutral"

Air freight (expansion of facilities)

- Five responses were "Support"
- One response was "Neutral"

Improved intermodal facilities (e.g., ferry to rail, air freight to truck, etc.)

- Five responses were "Support"
- One response was "Neutral"

Identification of appropriate trucking routes/trucking restrictions

- Two responses were "Strongly Support"

- Two responses were "Support"
- Two responses were "Neutral"

There was one comment: "convert South St Hyannis to 2 way traffic to allow for safer egress from WHMVNSSA terminal."

QUESTION 11: DO YOU HAVE ANY OTHER COMMENTS, QUESTIONS, OR CONCERNS?

This question had one response: "It is troublesome to hear that any wide load requires two state police escorts on the bridges. Trucking companies pay a four hour minimum to the state police for this service when the drive over the bridge takes 15 minutes!"

RECOMMENDATIONS

This 2015 Cape Cod Freight Study was the first attempt by the Cape Cod Metropolitan Planning Organization to bring a comprehensive assessment of issues facing freight haulers to, from and within Barnstable County. In order continue to make progress in improving freight safety and reliability, the following strategies were offered in the report:

Identify "Critical" Freight Commodities

Work with planners to identify commodities critical in all stages of emergency preparedness and response. These stages include advanced planning and resiliency preparations, emergency management during events, and follow-up/rehabilitation.

Encourage Specific Types of Freight Transportation

Freight modes that minimize travel over Cape Cod's narrow and congested roadways are to be encourages. Such modes include rail and waterborne. Trucking deliveries during off-peak times are also encouraged.

Make Infrastructure Improvements for Freight Industry

Maintain and rehabilitate bridges and roads – focusing on higher functional class facilities. During roadway and intersection rehabilitation on truck routes, include properly-engineered pavement, turning radii, and avoid height obstructions.

Update Truck Routes

Work with town and state officials to refine preferred truck routes. Currently, truck routes are based on a limited number of state roads and may be discontinuous based on jurisdiction. Refined truck routes would be included in the MassDOT's Roadway Inventory.

Bridge Maintenance Scheduling

To reduce impact to freight traffic, restructure Bourne and Sagamore bridge repair contracts (night work or 24-hour shift).

CAPE COD COMMISSION

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix F: Bicycle & Pedestrian

JULY 15,
2019

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Technical Appendix F: Bicycle & Pedestrian

This appendix presents an overview of bicycle and pedestrian planning on Cape Cod, including discussion of crash and road safety data, existing facilities, safety and planning studies, and planning efforts related to bicycles and pedestrians on Cape Cod.

CAPE COD BICYCLISTS AND PEDESTRIANS

Bicycling is popular throughout Cape Cod, both as a transportation mode and a recreational activity. Local residents and visitors alike bicycle and walk along area roads and off-road paths to reach local shops and services, town centers, workplaces, beaches, and other attractions. Bicycling and pedestrian improvements are underway in all Cape Cod communities. The regional bicycle and pedestrian facility network is growing, particularly with the recent extension of the Cape Cod Rail Trail through Yarmouth and continued future extensions westward to Barnstable and eastward through Outer Cape communities. Xx towns have designated bicycle and pedestrian committees that are working to address bicyclist and pedestrian needs in their communities. MassDOT and the Cape Cod Commission are working with local communities to address deficiencies and encourage "Complete Streets" projects. The American League of Bicyclists designated both Provincetown and Falmouth "Bike Friendly Communities."

Despite the popularity of bicycling and walking and recent improvements to the bicycle/pedestrian facility network, many areas are hazardous and uncomfortable to bike or walk to due to roads with high traffic volumes and speeds and no bicycle or pedestrian accommodations. Identifying and addressing gaps in the network is important for encouraging healthy transportation options on Cape Cod.

Cape Cod Residents Who Bicycle and Walk to Work

The U.S. Census Bureau provides information on means of transportation through the "American Community Survey" – the latest tabulation being available for 2006-2010. The table shows the numbers and percentages of people who bicycle or walk to work, which is one indicator of the level of bicycling and walking for transportation purposes. It captures only year-round residents and does not include Cape Cod seasonal workers, most of whom commute by bike or on foot. Overall, about 4.5% of Cape Cod's workers walk or bike to work.

VEHICULAR CRASH RECORDS

The following sections include discussions of vehicular crash records that include bicyclists or pedestrians.

Bicyclist Crash History

Bicycling on Cape Cod roadways can be a challenge. The mixture of narrow roadways, high traffic volumes, and pleasant summer weather creates a difficult vehicle-bicycle interaction. Cape Cod's pleasant summer weather brings bicyclists onto roadways at the time when vehicular traffic is at its peak. As a healthy transportation mode that provides pollution-free travel, improving roads and providing facilities that are comfortable for cyclists and pedestrians is a beneficial goal for Cape Cod communities. Bicyclist and pedestrian crashes are shown in the figure on the following page.

Table 1 includes a town-by-town breakdown of bicycle-vehicle crashes for the years 2012-2016. With 149 reported crashes over the three-year period, Barnstable had the greatest number of bicyclist-vehicle crashes (Falmouth was second with 74 crashes). Staff has observed numerous cyclists along Route 28 (where many of the identifiable crashes occurred) during the summer, when much of the Cape's seasonal workforce bicycles to work, often in locations with high traffic volumes and no bicycle accommodations

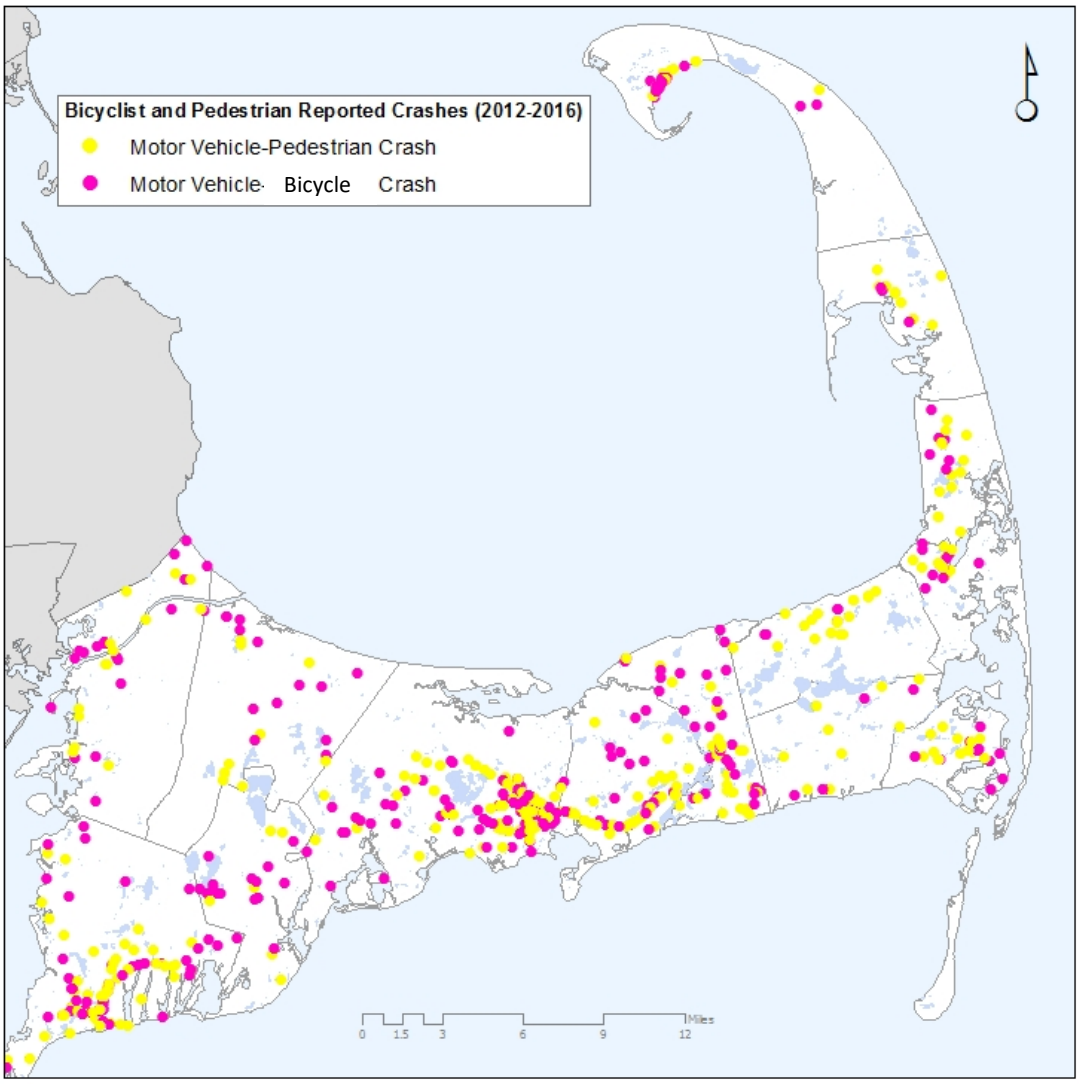


FIGURE 1. Bicyclist and Pedestrian Vehicular Crashes

TABLE 1. Bicyclist-Vehicle Crash History (2012-2016)

TOWN	ALL CRASHES (5-YEAR TOTAL)	FATAL CRASHES (5-YEAR TOTAL)
Bourne	14	0
Sandwich	14	0
Falmouth	74	0
Mashpee	7	0
Barnstable	149	2
Yarmouth	64	0
Dennis	39	0
Harwich	12	0
Chatham	15	0
Brewster	19	1
Orleans	13	0
Eastham	18	1
Wellfleet	12	1
Truro	3	0
Provincetown	22	0
Total	**475**	**5**

(Source: MassDOT)

Pedestrian – Vehicular Crashes

Pedestrians are among the most vulnerable users of the transportation system. Safe accommodations for walking can encourage a reduction in traffic congestion and air pollution and encourage a healthy travel mode. Error! Reference source not found. shows the number of vehicle-pedestrian crashes for each town. Barnstable had the highest number (129) of crashes reported from 2012 to 2016. This number represents both the high number of pedestrians who walk along Route 28 in the summer and the deficiencies in pedestrian accommodation (e.g., safe pedestrian crossings at intersections) resulting in the high crash history.

TABLE 2. Pedestrian-Vehicle Crash History (2012-2016)

TOWN	ALL CRASHES (5-YEAR TOTAL)	FATAL CRASHES (5-YEAR TOTAL)
Bourne	30	1
Sandwich	19	0
Falmouth	73	2
Mashpee	18	1
Barnstable	129	2
Yarmouth	44	4
Dennis	38	2
Harwich	5	0
Chatham	12	2
Brewster	6	0
Orleans	16	0
Eastham	8	1
Wellfleet	6	0
Truro	3	0
Provincetown	27	0
Total	434	15

(Source: MassDOT)

ROADWAY SAFETY AUDITS – BICYCLE/PEDESTRIAN RECOMMENDATIONS

MassDOT oversees Road Safety Audits (RSAs), a process that brings together a multi-disciplinary group of state and community officials and other stakeholders in an intensive review of high-crash locations' operational and geometric deficiencies. Each audit includes a review of traffic and crash information and onsite field review. The audits include analysis of bicyclist and pedestrian safety. The RSA team looks at crossing conditions, accessibility, bicyclist and pedestrian comfort; vehicle conflicts; visibility; and other bicycle/pedestrian safety factors. Improvement recommendations might include installing curb ramps; repainting crosswalks and lanes; installation of an island for bicyclist/ pedestrian refuge; shoulder widening or bike lane; bicycle detection; advance pedestrian/bicyclist warning signage; etc.

For further information on individual RSA's, the Safety Appendix of this document. The full list RSA's can be seen at www.capecodcommission.org/safety

Other Safety Studies In addition to RSA's Cape Cod Commission staff also conducts location-specific safety studies throughout the region, upon request by a town or MassDOT. These studies are available at: www.capecodcommission.org/safety

BICYCLE AND PEDESTRIAN PLANNING

The following sections provide discussion on types of bicyclists; references to bicycle and pedestrian facility design guidelines, discussion of the regional network vision; descriptions of the Cape's existing bicycle and pedestrian infrastructure and a summaries of recent bicycle/pedestrian studies and plans.

The Commission is currently involved in bicycle/pedestrian planning efforts with several Cape Cod communities. It is anticipated that recommendations from these studies will yield projects for inclusion in the Regional Transportation Plan.

Types of Bicyclists

Bicyclists with different levels of experience, confidence, and purpose for riding have varied accommodation needs. A strong and effective bicycle plan meets the needs of bicyclists with varied abilities through a combination of facility types, both on and off-road. Transportation planners/designers also consider their levels of comfort and stress. A new bicyclist typology has

emerged over the last decade that helps planners understand the facility needs of the different types of cyclists.[1]

- Strong and fearless – people willing to ride with limited or no bike infrastructure
- Enthused and confident – people willing to ride if some bike infrastructure is provided
- Interested but concerned, wants to ride and would if they felt safer on the roadways—if cars were slower and less frequent, and if there were more quiet streets with few cars and paths without any cars at all.
- "No way, now how" – people who are unwilling to ride under any circumstance

In both nation-wide and local surveys, a majority of respondents identified as "interested but concerned." Such riders want to bicycle more and would if they felt safer – either by accessing low-speed roads or using bicycle infrastructure. Designing bicycle networks for this type of rider would encourage more everyday riding. While the typologies are based on surveys and responses from urban riders, they are likely applicable for bicyclists on Cape Cod.

BICYCLE AND PEDESTRIAN FACILITY DESIGN

The MassHighway *Project Development and Design Guide* provides guidelines for bicycle and pedestrian facilities and can be referenced at: https://www.mass.gov/files/documents/2018/08/08/pddg.pdf

FHWA provides bicycle and pedestrian facility design guidelines useful and applicable for parts of Cape Cod in a 2016 document entitled Small Town and Rural Multimodal Networks. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/fhwahep17024_lg.pdf. The guide addresses challenges to small or rural towns and provides case studies. It groups bike and pedestrian facilities as follows:

- **Mixed Traffic Facilities** such as yield roadways, bike boulevards, and advisory shoulders.
- **Visually Separated Facilities** such as paved shoulders and traditional bike lanes.
- **Physically Separated Facilities** such as shared-use paths, sidepaths, sidewalks, and protected bike lanes.

[1] Jennifer Dill and Nathan McNeil, "Revisiting the Four Types of Cyclists: Findings from a National Survey," Transportation Research Record: Journal of the Transportation Research Board, 2587: 90-99, 2016.

REGIONAL VISION & GOALS

"Vision 88" proposes a continuous shared-use path network of 88 miles from Woods Hole to Provincetown. The route will consist of existing facilities such as the Cape Cod Rail Trail, the Shining Sea Bikeway, and the Cape Cod Canal bike path. Newer segments are in various stages of planning and design. As an overall framework, the following figure represents an overall vision for bicycle path connections to and within Cape Cod. The segments shown in green represent existing bicycle paths. Orange line segments represent generalized routes; detailed alignments are to be defined. This figure represents the Cape Cod Commission's vision for expansion of the Cape's bicycle path infrastructure.

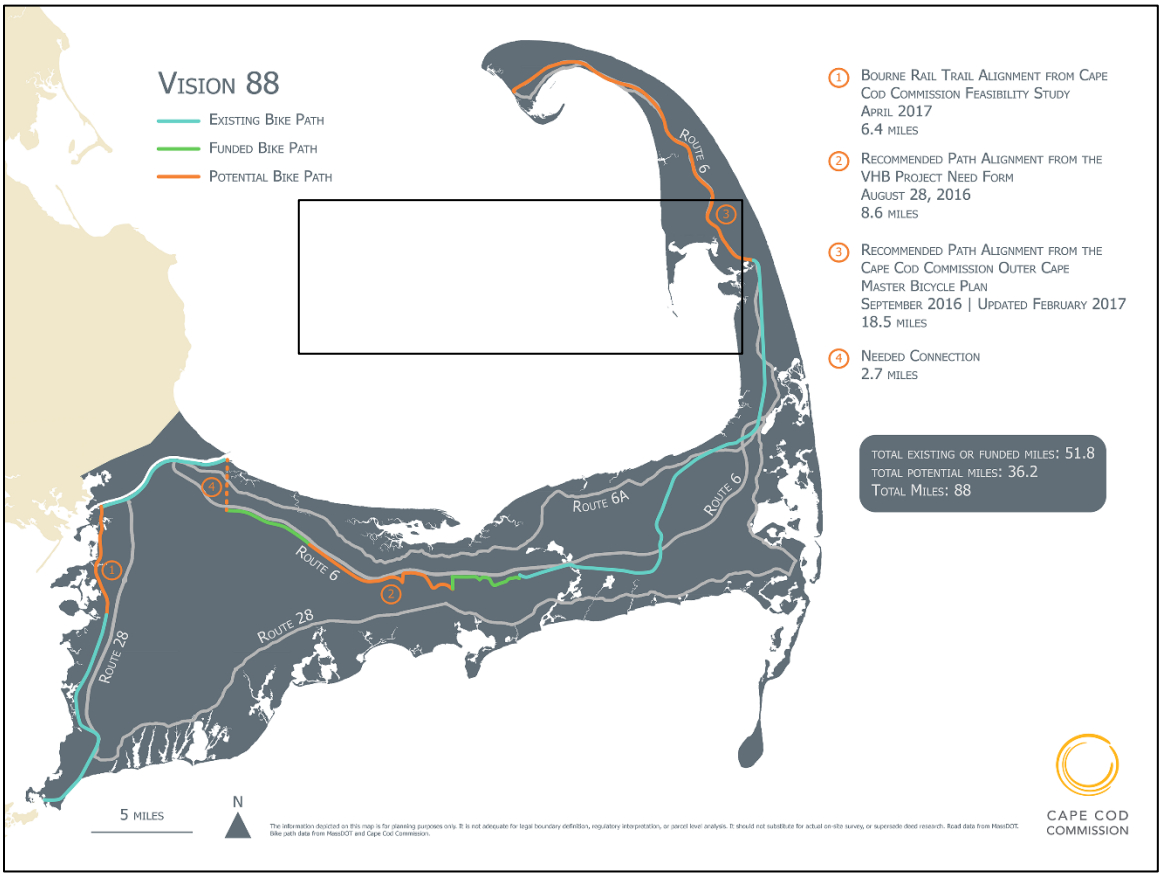


FIGURE 2. Shared Use Path Vision Map

The following subsections include text, figures and tables that define and describe the bicycle and pedestrian infrastructure of Cape Cod. This information forms the baseline of the existing system and helps planners identify gaps and opportunities to improve bicycling and walking on Cape Cod.

EXISTING BICYCLE AND PEDESTRIAN FACILITY NETWORK

Multi-Use Paths

A multi-use path is a path or trail that is physically separated from motor vehicle traffic located either within the road right of-way or within an independent right-of-way. Also referred to as shared-use paths, they include bicycle paths, rail-trails or other facilities built for bicycle and pedestrian traffic and allowing other non-motorized travel modes such as skateboards and horses.

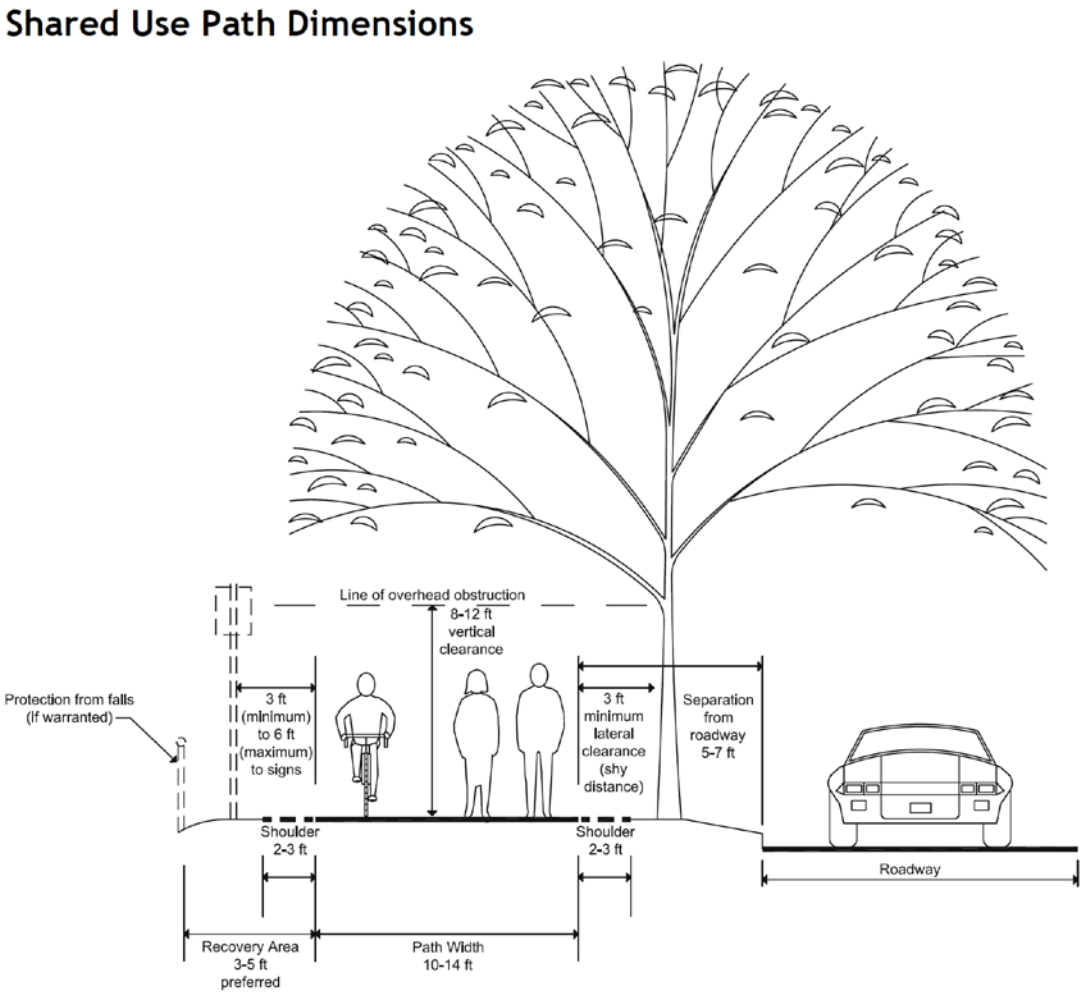


FIGURE 3. MassDOT Shared Use Path Dimensions

(Source: MassHighway Design Guide)

There are currently 91 miles of paved multi-use paths on Cape Cod.

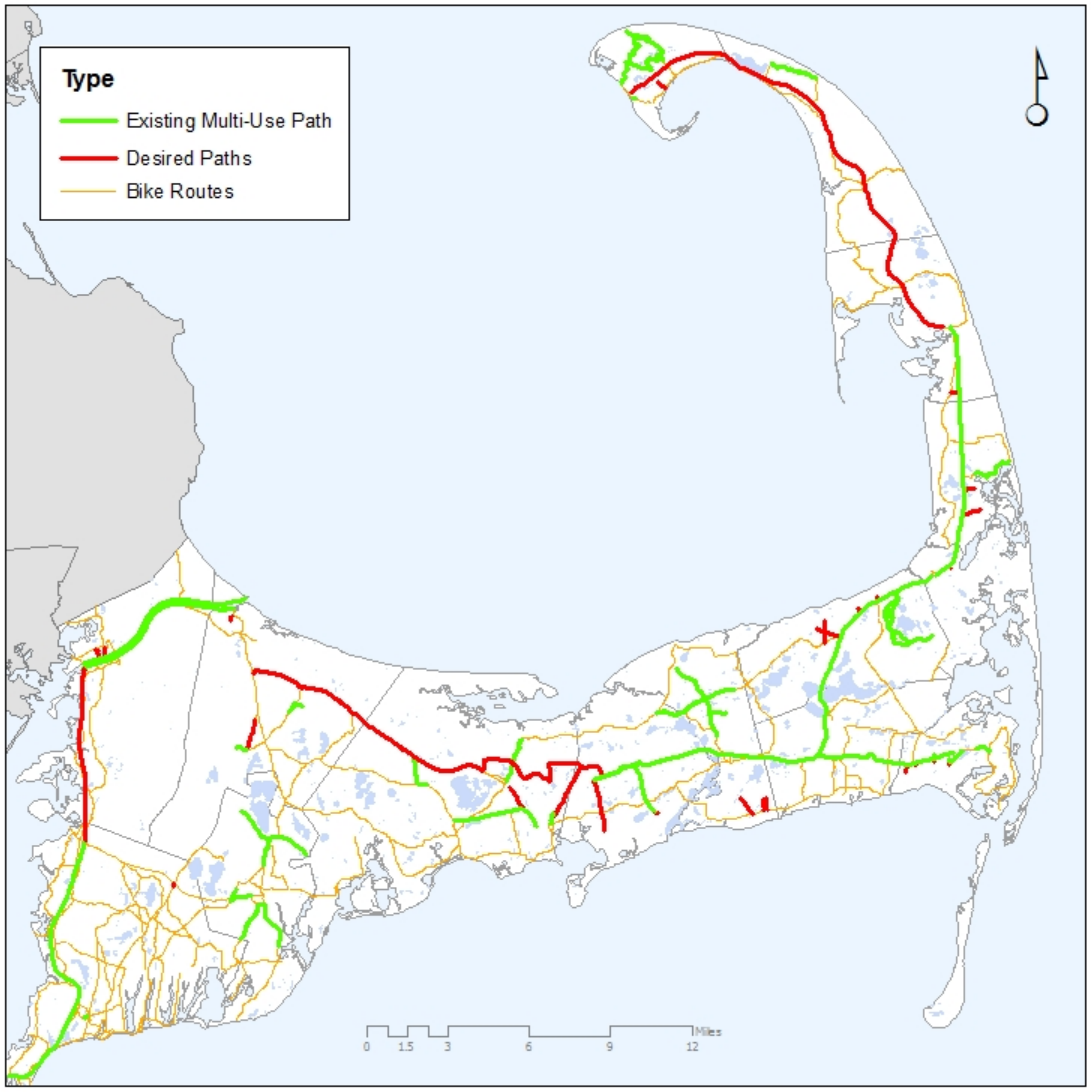


FIGURE 4. Multi-Use Paths and Routes on Cape Cod

Region-wide Multi-use Paths

CAPE COD RAIL TRAIL

The Cape Cod Rail Trail was constructed in the 1970s from the out of service Cape Cod Line rail right-of-way. Several additions, including bridges over Route 6 and a tunnel beneath it, have been completed in the past two decades, with more extensions planned. The Massachusetts Department of Conservation and Recreation (DCR) owns and maintains the Rail Trail.

The Rail Trail runs 26 miles from Peter Homer Park in Yarmouth to LeCount Hollow Road in Wellfleet, with a 6.2 mile "spur" running from Harwich to Chatham along the out-of-service Chatham Branch rail right-of-way. A further extension of the Rail Trail from Peter Homer Park to Mary Dunn Road in Barnstable is to is currently programmed in the TIP. Continuation of the Rail Trail to Route 132 in Barnstable as well as A further extension to the Hyannis Transportation Center are planned. A proposed eastward extension from Wellfleet to Truro and Provincetown is underway, as recommended in the 2016 Outer Cape Bicycle and Pedestrian Master Plan.



FIGURE 5. Cape Cod Rail Trail Crossing at Main Street, Harwichport



FIGURE 6. Cape Cod Rail Trail at Brackett Road, Eastham



FIGURE 7. Harwich-Chatham Rail Trail Extension at the Harwich-Chatham Town Line



FIGURE 8. End of the Harwich-Chatham Rail Trail Extension At Crowell Rd., Chatham



FIGURE 9. Bicycle Roundabout on the Cape Cod Rail Trail, Harwich

Cape Cod National Seashore Bike Paths

PROVINCE LANDS TRAILS AND HERRING COVE BEACH PATH

The 7.6 miles of Province Lands Trails are located at Race Point in Provincetown. They provide a path from near Route 6 to the Provincetown beaches and the Provincetown Municipal Airport. Travelers primarily use the Province Lands Trails for recreation rather than commuting. The Park Service rehabilitated/repaired the path in 2014 to address safety concerns. The 0.1 miles long Herring Cove Beach Path serves as a connection between the Herring Cove Beach parking lot and Province Lands Road. It also a connects to the Province Lands trails through the parking lot.



FIGURE 10. Province lands Trail at the Race Point Visitors Center, Facing West

NAUSET TRAIL

The 1.9-mile Nauset Trail is located in Eastham at the Salt Pond Visitors Center and runs to Coast Guard Beach.



FIGURE 11. Nauset Trail from the Salt Pond Visitor's Center Looking East



FIGURE 12. Nauset Trail from Coastguard Beach Parking Lot in Eastham

HEAD OF THE MEADOW TRAIL

The 1.9-mile Head of the Meadow Trail is located in Truro in Cape Cod National Seashore. It runs from Head of the Meadow Road to High Head Road in Pilgrim Heights. The Park Service will repair and rehabilitate the trail in 2019 and add a connector piece from Highland Road along Old King's Highway as part of the Outer Cape Bicycle and Pedestrian Master Plan.



FIGURE 13. Head of the Meadow Trail at Head of the Meadow Road, Truro

Other Bike Paths

CAPE COD CANAL BIKE PATHS

The Cape Cod Canal Bike Paths run along both sides of the Cape Cod Canal. The Army Corps of Engineers owns and maintains the paths as frontage roads for the Cape Cod Canal. Both sides have benches and sitting areas and are lit at night. The southern-side path is 6.5 miles long, 8 feet wide and has 2 roadway crossings. The mainland-side path is 7 miles long, 8 feet wide and has 7 roadway crossings.



FIGURE 14. Southern-Side of the Canal Bicycle Path, East of Sagamore Bridge



FIGURE 15. Mainland-Side of the Canal Bicycle Path, East of Railroad Bridge



FIGURE 16. Shining Sea Bicycle Path at Ter Huen Drive, Falmouth



FIGURE 17. Shining Sea Bicycle Path at Palmer Ave., Falmouth

SHINING SEA BIKE PATH

The Shining Sea Bike Path, located in Falmouth, was constructed from a portion of the out-of-service Woods Hole Branch rail right-of-way. The first phase of construction, which runs from the Steamship Authority terminal in Woods Hole to the Falmouth Bus Depot on Depot Street, was completed in 1976. The bike path has been extended northward over a series of phases to its current terminus at County Road (Route 151). The trail is currently 10.6 miles long. The Cape Cod Commission completed a feasibility study in 2017 for extending the bike path into Bourne, eventually connecting to the Cape Cod Canal bike path.

SETUCKET ROAD AND DENNIS PATHS

Several paths exist in Dennis, creating a network for bicyclists and pedestrians. The longest path runs along Old Bass River Road from just south of Bob Crowell Road. The portion south of Mayfair Street is designated as Bicycle Route 1, part of the Claire Saltonstall Bikeway. The Old Bass River Road Path is 3.1 miles long. The 3.2-mile Setucket Road Path begins in Yarmouth at Route 6A and ends west of Airline Road. The path crosses Route 134 and Old Bass River Road. The western section of path, until Mayfair Road, is also designated as Bicycle Route 1. The third path in Dennis is the 0.7-mile Old Chatham Road path between Old Bass River Road and Route 134. All of these paths are owned and maintain by the Town of Dennis except for the section of path in Yarmouth, which is owned and maintained by that town. They provide a network of bicycle transportation for residents of Dennis.



FIGURE 18. Setucket Road Path East of North Dennis Road, Looking East



FIGURE 19. Setucket Road Path East of North Dennis Road, Looking West

NICKERSON STATE PARK TRAILS

Several bicycle paths are located within Nickerson State Park in Brewster. These paths are used for recreation, offering a scenic ride through the park. They are owned by the Massachusetts Department of Conservation and Recreation. There is a total of 6.8 miles of bicycle path, with six roadway crossings.

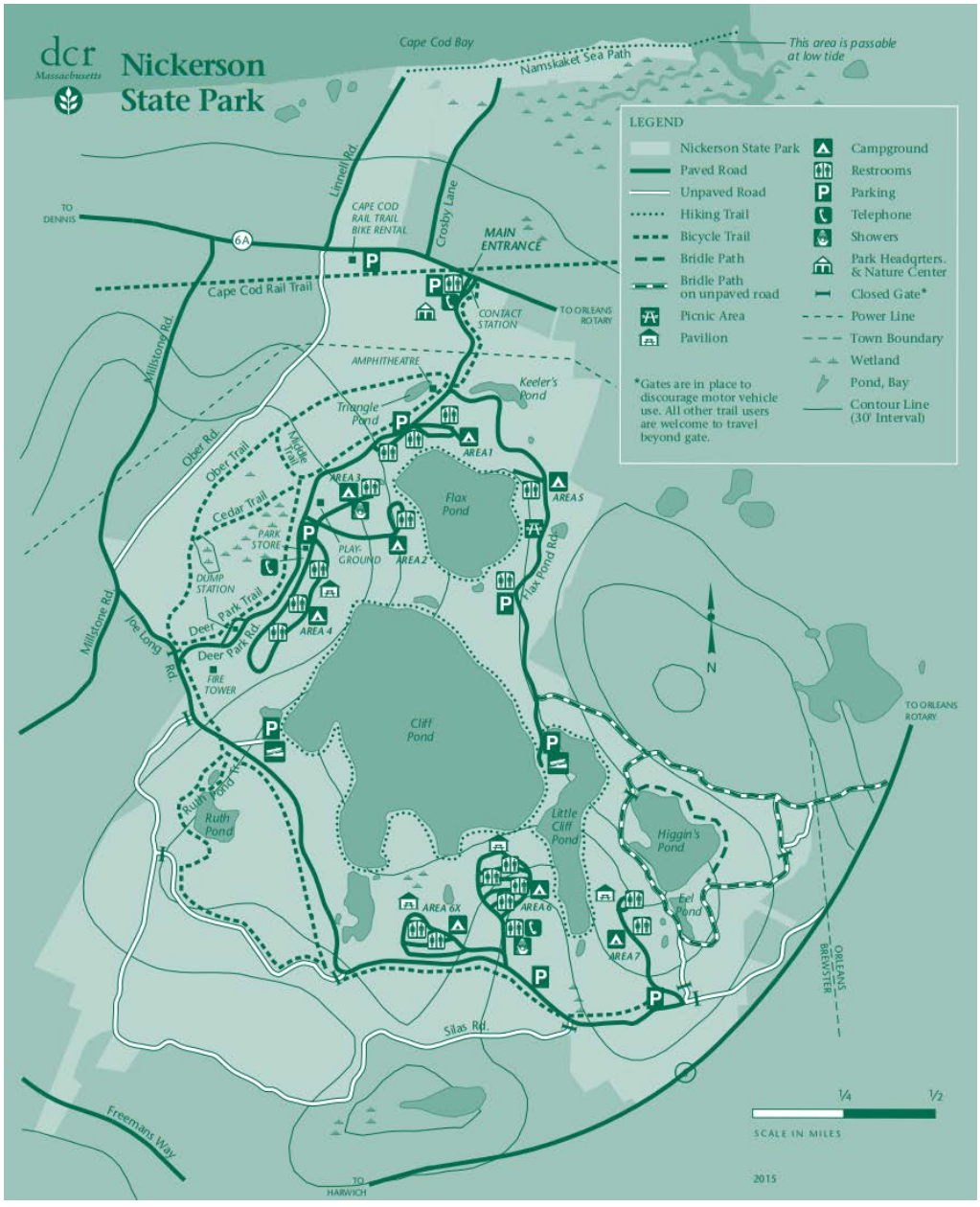


FIGURE 20. Map of Nickerson State Park Trails

(Source: Massachusetts Department of Conservation and Recreation)

ROUTE 28 PATH

The 2.5-mile Route 28 Path runs along Route 28 in Barnstable from Bearses Way to Old Stage Road. The path was constructed in 1980 by the Town of Barnstable as a safe route to the middle and high schools. However, some sections of the path have not been designed to bicycle path standards, with narrow pavement, insufficient shoulders, and inadequate roadway crossings. The path is used primarily for commuting, as it connects residences, businesses, schools and other points of interest.

ROUTE 130 PATH

The 2.4 miles Route 130 Path runs along Route 130 from Heritage Memorial Park to just north of Route 28 in Mashpee. The path is owned by the town of Mashpee.



FIGURE 21. Looking North on Route 130 Bicycle Path at Lovells Lane, Mashpee



FIGURE 22. Looking South on Route 130 Bicycle Path at Lovell's Lane, Mashpee

OLD TOWNHOUSE ROAD TRAIL

The 2 miles long Old Townhouse Road Trail runs from near Station Avenue, along Old Townhouse Road, behind the Bayberry Hills Golf Course, to Higgins Crowell Road in Yarmouth. The trail will become part of the Cape Cod Rail when the CCRT is extended from Peter Homer Park to Barnstable.



FIGURE 23. Old Townhouse Road Path East of West Yarmouth Rd., Yarmouth



FIGURE 24. Old Townhouse Road Path West of West Yarmouth Rd., Yarmouth



FIGURE 25. Old Townhouse Road Path at the Bayberry Golf Course in Yarmouth



FIGURE 26. Old Stage Road Path at the Service Road in Barnstable

OLD STAGE ROAD PATH

The 1.9 miles Old Stage Road Path begins at Route 149 in Barnstable, continues along the Service Road, and then turns down Old Stage Road. The path ends at Oak Street, where travelers can continue by sidewalk to Route 28 and Centerville shopping areas. The path was constructed in the

early 1980s and is owned by the Town of Barnstable. It is used for both recreation and commuting, connecting West Barnstable and Centerville.

FOREST ROAD PATH

The 1.4 miles Forest Road Path was built alongside Forest Road in 2006. It runs from Old Townhouse Road to Winslow Gray Road in Yarmouth. Continuing south on Forest Road, users can reach South Yarmouth and Route 28. Although terminating at Old Townhouse Road, the Forest Road Path does not directly connect with the trail there.



FIGURE 27. Forest Road Path, Looking North



FIGURE 28. Forest Road Path, Looking South

ROUTE 151 PATH

The 1.1 miles Route 151 Path runs along Route 151 from Mashpee Commons to Old Barnstable Road in Mashpee. At Old Barnstable Road, 2 forks turn south to access Mashpee High School. A third fork turns north and provides a connection to the Golf Club at Southport. The Route 151 Path is owned by the Town of Mashpee.

TABLE 3. Bicycle Path Mileage by Path

PATH NAME		LENGTH IN MILES	WIDTH IN FEET
Cape Cod Canal Bike Path	Total Mileage both Sides	13.6	8
Cape Cod Rail Trail	Main Path	26	8.5 / 10
Cape Cod Rail Trail	Harwich-Chatham Ext.	6.9	8.5
Downtown Falmouth Path		0.2	-
Forest Road Path		1.4	8.5
Forestdale School Path		0.4	10
Head of the Meadow Trail (with 2020 rehab)		1.9	8.5 -10
Hyannis Transportation Center Path		0.4	-
Nauset Trail		1.9	8
Nickerson State Park Trails		6.8	-
Old Stage Road Path		1.9	-
Old Townhouse Road Path		2.0	8
Provincelands Trail		7.6	8-10
Herring Cove Beach Path		0.1	8
Route 130 Path		2.4	-
Route 151 Path		1.3	-
Route 28 Path		2.6	8
Setucket Road and Dennis Paths		7.0	8.5
Shining Sea Bikeway		10.6	8.5

HYANNIS TRANSPORTATION CENTER PATH

The 0.4 Hyannis Transportation Center Path runs from Route 28 in Barnstable to Main Street Hyannis. The trail was built during the construction of the Hyannis Transportation Center in 2002.

FORESTDALE SCHOOL PATH

The 0.4 Forestdale School Path is located in Sandwich and connects Route 130 to the Forestdale School. Given that one can walk or bicycle from the nearby neighborhoods, the shared-use path serves the needs of students traveling to and from the school.

DOWNTOWN FALMOUTH PATH

The Downtown Falmouth Path is located on Hamlin Street in Falmouth, between Dillingham Avenue and Katherine Lee Bates Road. The bicycle path is owned by the Town of Falmouth. As a connection to downtown Falmouth, the path is used to access town hall, the library, and businesses. The Downtown Falmouth Path is 0.2 miles long and has no roadway crossings.

Bicycle Lanes

MassDOT upgraded the paved shoulders on Route 6 in Truro and Wellfleet to bike lanes in 2017 by installing bike lane symbols and signage and lane striping. The 2017 Outer Cape Bicycle and Pedestrian Master Plan recommended conducting a feasibility study of extension into the four-lane section in North Truro and Provincetown. The National Park Service installed a bike lane on Province Lands Road Bradford Street and Herring Cove beach in 2011.

Bicycle Routes

A bicycle route is any road, path, or trail that has been designated for bicycle use. In many cases, these are side streets with a low volume of traffic, or roads with wide shoulders. Many bicycle routes exist on Cape Cod, some of which are better signed than others. They allow bicycle users a wide network of travel across Cape Cod.

CLAIRE SALTONSTALL BIKEWAY

In 1978 the Massachusetts General Court established the Claire Saltonstall Memorial Bikeway (also known as "Mass Bike Route 1" and the "Boston to Cape Cod Bikeway") as a memorial to Claire Saltonstall, daughter of Senator William Saltonstall, who died in a bicycle accident in 1974. The bike route consists of a series of interconnected on-road segments and multi-use paths beginning in Boston and ending in Provincetown. A secondary leg extends from Bourne to Falmouth. A green oval route sign marks the route location and guides bicyclists., although signs are missing, and the route is difficult to follow without a map. The Cape Cod section of the Claire Saltonstall Bikeway is 98.3 miles in length. The Bourne to Provincetown portion is about 75.4 miles long, while the Bourne to Woods Hole portion is 22.9 miles long. Overall, the Claire Saltonstall Bikeway is about 165 miles long.



FIGURE 29. Signage on State Bicycle Route 1



FIGURE 30. Claire Saltonstall Bikeway – Current Routing

In February of 2015 the Cape Cod Commission published "Claire Saltonstall Memorial Bikeway: Cape Cod Segment –Recommended Route Revisions." The report is a result of collaboration between Commission staff and bikeway committee members in the affected towns.

The report includes recommendations to revise the route to create more comfortable conditions for bicyclists (e.g., lower volume roads, shared use paths). With the construction of new multi-use paths, particularly Cape Cod Rail Trail extensions, on-road segments, the study recommends re-routing on-road segments to off-road paths where available. The study includes a suggested phasing of the re-routing to allow time for the new path construction. The report is available online at:

www.capecodcommission.org/bikeped

The following figures show details of the proposed realignment for the various segments of the route. The realignment maximizes use of shared-use paths where available.

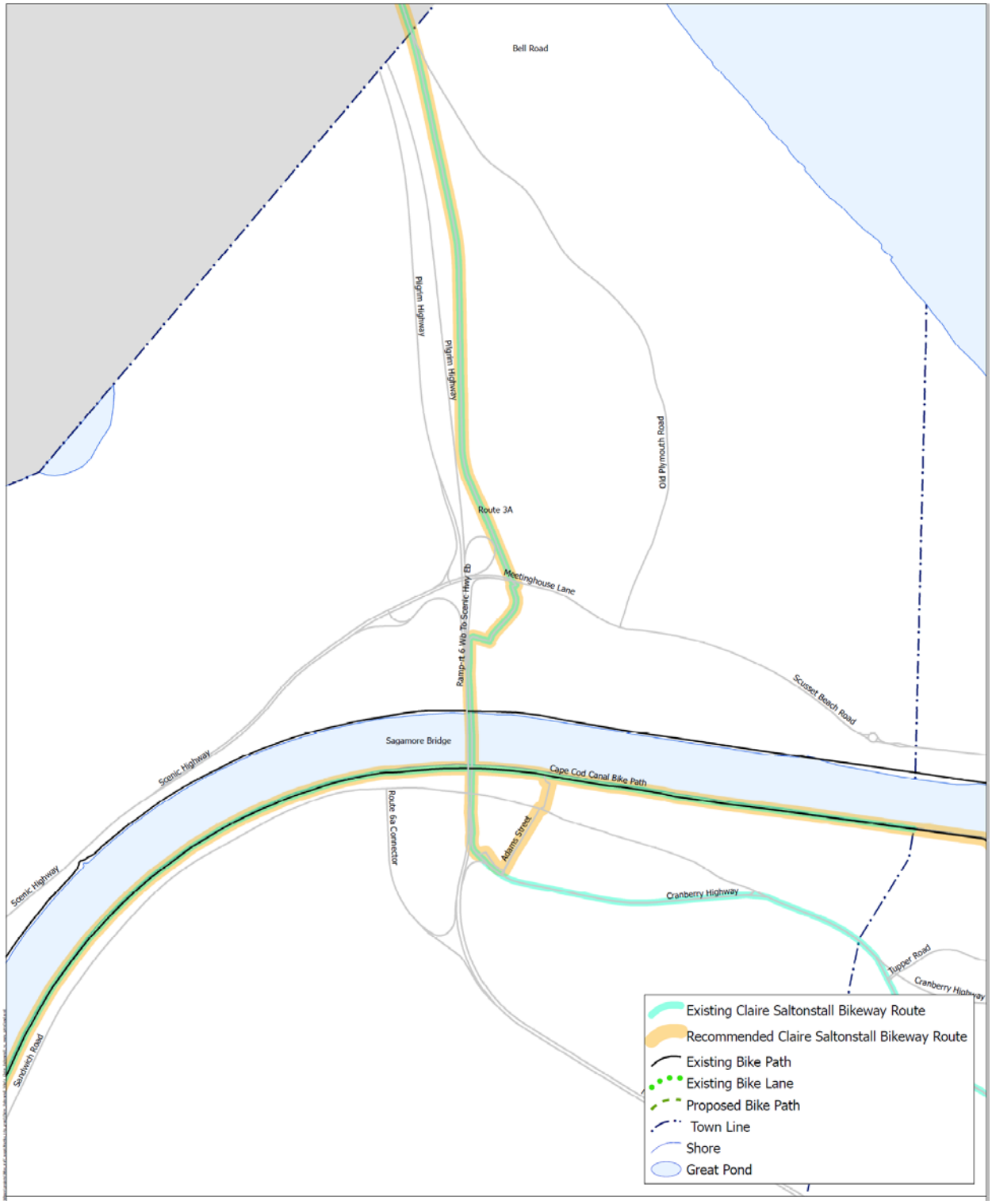


FIGURE 31. Recommended Saltonstall Route (Bourne)

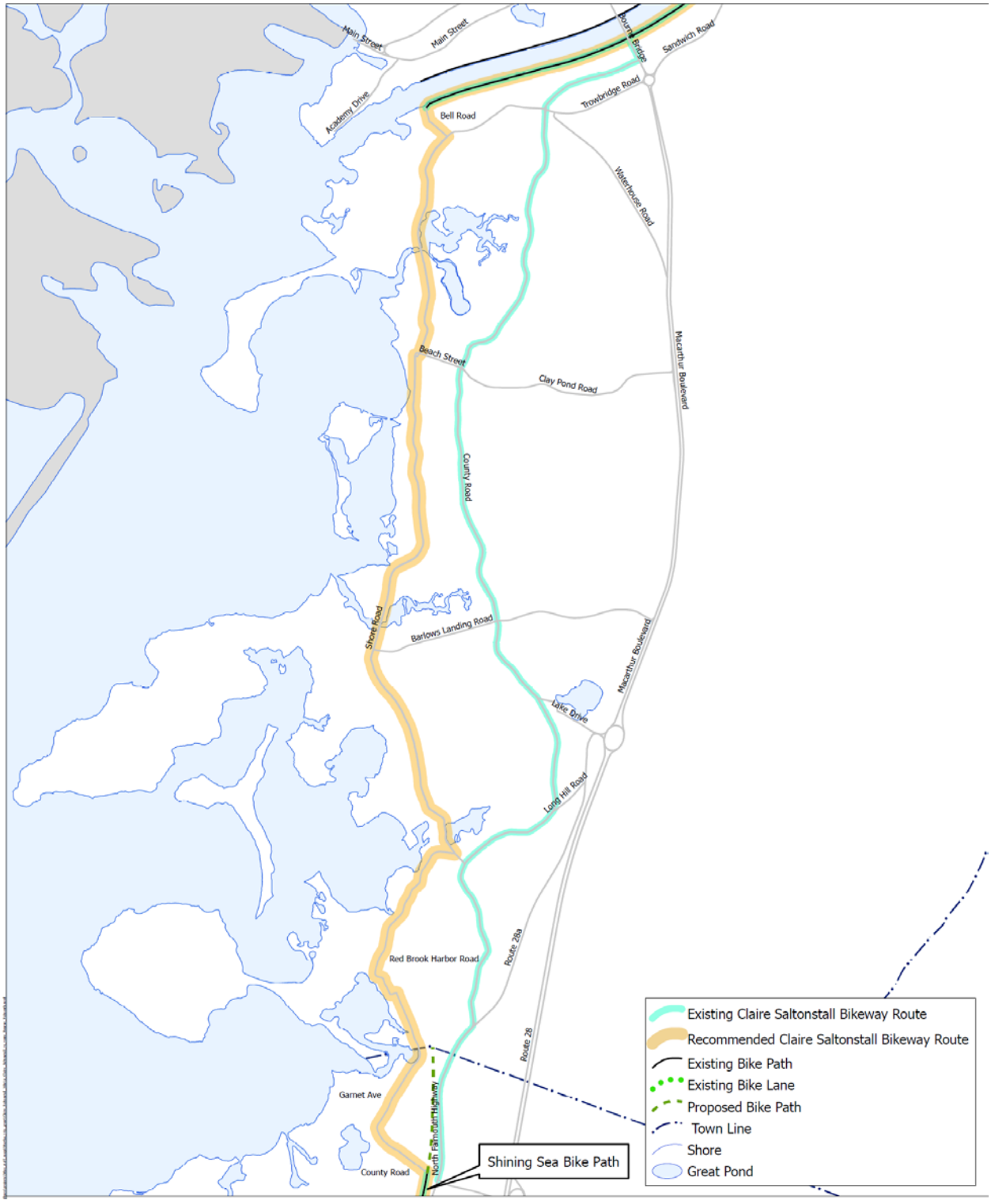


FIGURE 32. Recommended Saltonstall Route (Bourne-Falmouth)



FIGURE 33. Recommended Saltonstall Route (Bourne-Sandwich-Barnstable)



FIGURE 34. Recommended Saltonstall Route (Barnstable-Yarmouth-Dennis)

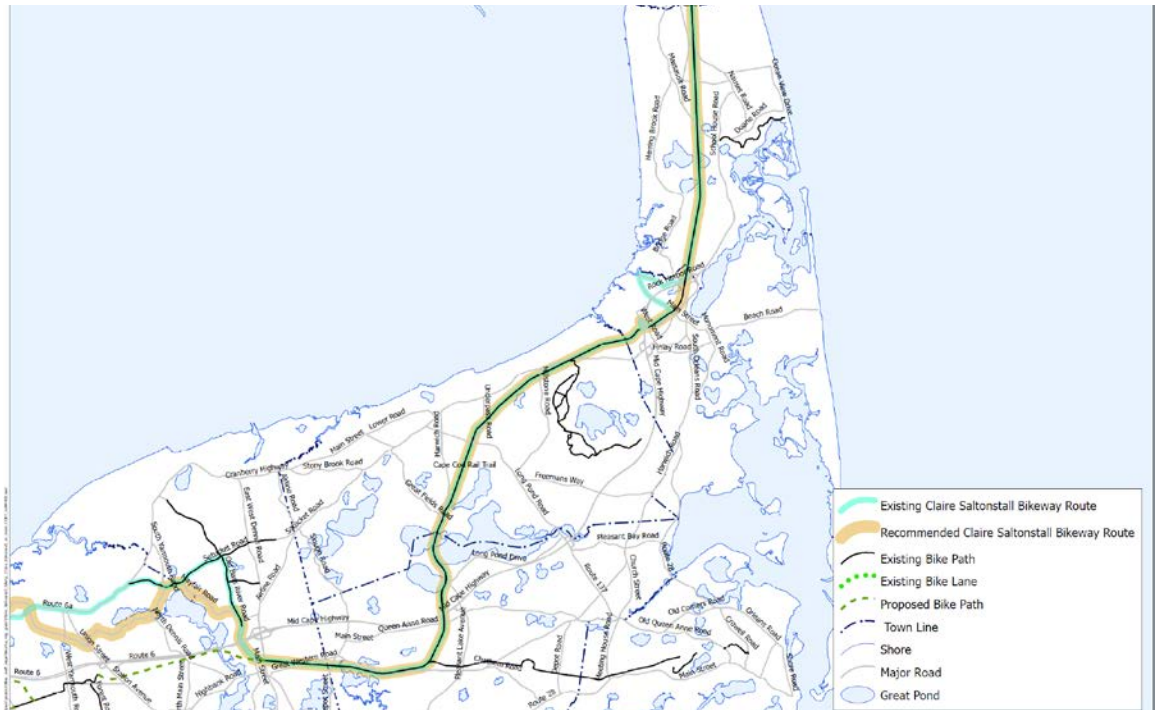


FIGURE 35. Recommended Saltonstall Route (Dennis-Harwich-Brewster-Orleans-Eastham)



FIGURE 36. Recommended Saltonstall Route (Wellfleet)



FIGURE 37. Recommended Saltonstall Route (Wellfleet-Truro-Provincetown)

Other State Bicycle Routes

MassGIS has also identified other bicycle routes throughout Cape Cod. Some examples are Buck Island Road in Yarmouth, Great Western Road in Dennis and Harwich, or Great Neck Road in. The Cape Cod Commission and AmeriCorps performed a survey of many of these roads in 2006. According to the survey, many of these roads are unsigned and some have sharp turns, no shoulders, or high traffic volumes. Evaluating existing bicycle routes, maintaining proper signage, and identifying possible new routes will help to encourage more bicycle use on Cape Cod, both commuter and recreational.

The Town of Falmouth has designated many of their roads to be bicycle routes. Some examples are Gifford Street, Sippewisset Road, Route 151, and Menauhant Road. According to a survey conducted by the Cape Cod Commission and AmeriCorps performed in 2006, many of these routes are signed and have sidewalks. In total, there are 101.8 miles of roadway in Falmouth designated as bicycle routes.



FIGURE 38. Route 28 North of the Davis Straits Intersection, a Designated Bicycle Route in Falmouth

LOW VOLUME ROADS

Bicyclists and pedestrians can utilize low volume roads with minimal automobile conflicts. Cape Cod has 462.8 miles of major roads with summer average daily volumes (ADT) of 5,000 vehicles per day or less, and 91.2 miles of major roads with 1,000 vehicles per day or less. For reference, an ADT of 5,000 is equivalent to about one vehicle every seven seconds during daylight hours. An ADT of 1,000 is equivalent to about 1 vehicle every 35 seconds during daylight hours. The average daily volumes include the peak volumes. The actual volumes during most of the year would be less than the summer. Cape Cod also has about 1,803.4 miles of local paved roads that are suitable for safe bicycle and pedestrian traffic. Low volume roads are an important piece of a bicycle network, as many bicyclists are comfortable using them without a separated bicycle accommodation. Trips usually begin or end on side streets or in low traffic residential neighborhoods where they provide readily available route connections.

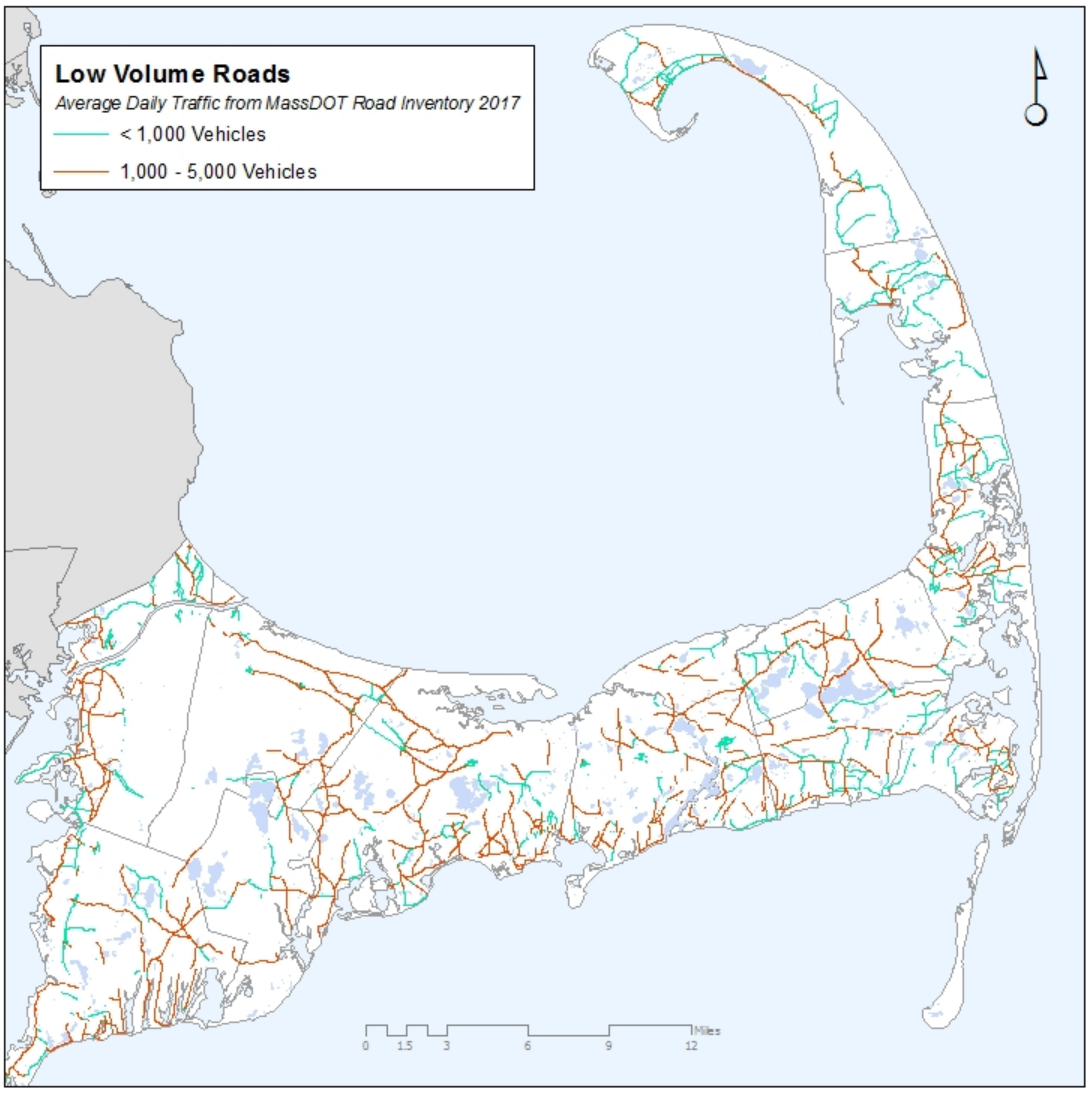


FIGURE 39. Low Volume Roads

Sidewalk Network

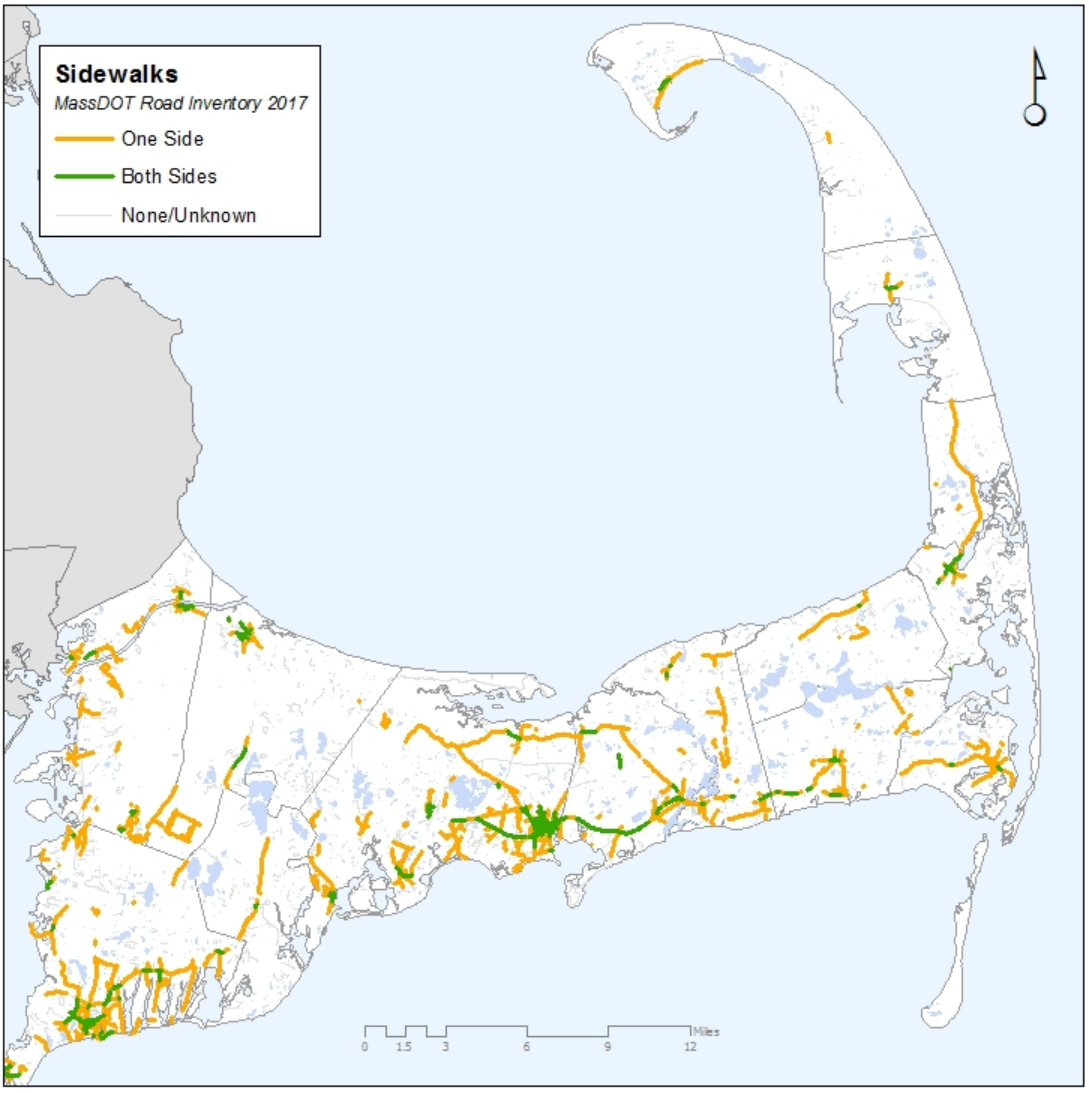


FIGURE 40. Sidewalk Network

Sidewalks are paved surfaces, usually adjacent to roadways, which are designed primarily for pedestrian usage. Sidewalks are typically 4 to 6 feet wide, made with slabs of concrete, paved asphalt, bricks, or other hard substances. The Americans with Disabilities Act requires sidewalk curb cuts to be large enough and shallow enough for wheelchair usage. Telephone poles, road signs, and other architectural barriers must also be removed in order to create an unobstructed path for walking. In Massachusetts, bicyclists may ride on sidewalks outside business districts unless otherwise prohibited by local ordinances.

According to the 2017 Massachusetts Statewide Roadway Inventory File, there are 230 miles of sidewalk located on Cape Cod. In addition, 39.10 miles of road have sidewalks on either side. These roads are concentrated primarily in Hyannis and downtown Falmouth. Of all paved roadways on Cape Cod, 5.1% have a sidewalk on at least one side. The average sidewalk width on Cape Cod by mileage is 4.4 feet.

All of these figures illustrate pedestrian issues that must be addressed by any review of bicycle and pedestrian transportation. Over 90% of Cape Cod roadways do not have sidewalks. While many of these streets are low volume and residential, some are not and do warrant sidewalks. On a street without sidewalks, pedestrians must walk in the shoulders or on private property. This is not only less safe, but it restricts access for the elderly and disabled. Moreover, some sidewalks on Cape Cod have architectural barriers, such as telephone poles, located within the sidewalk. Obstructions like these make sidewalk navigation more difficult, especially for the disabled. Expanding the existing sidewalk network and correcting improperly designed sidewalks will help to encourage pedestrian usage in, around, and between business and population centers.

The sidewalk network also includes crosswalks. Crosswalks provide a safe means for pedestrians and other sidewalk users to cross roadways. All crosswalks are marked on the roadway surface by white paint. Generally, crosswalks located on lower volume roads have no traffic control devices, or a sign telling motorists to yield to pedestrians. However, many crosswalks have crossing signals that stop traffic, allow pedestrians to cross, and warn pedestrians when traffic is about to resume. Typically, crossing signals are located with traffic signals at roadway intersections. However, there are four pedestrian signals on Cape Cod that are not located at a roadway intersection. Ensuring that crosswalks are located at high pedestrian areas throughout Cape Cod will help to improve safety as well as access. Access can also be improved by ensuring that crosswalks accommodate all users, including the elderly and disabled. Properly designed curb cuts that are usable by wheelchairs, tones at crosswalk signals for the blind, and other amenities can significantly improve sidewalk access for the disabled.

Unpaved Paths

In addition to paved sidewalks and multi-use paths, unpaved footpaths and trails provide pedestrian access and connections to destinations. While not formal/standard pedestrian accommodations, they facilitate pedestrian travel separated from motor vehicle space. In residential neighborhoods and rural locations, unpaved paths might be preferred over concrete or asphalt surfaces as more in keeping with the community character. Trail networks in Cape Cod National Seashore and in state and local conservation areas are used by local residents and visitors

as a way to enjoy a quiet travel experience through scenic and quiet coastal and woodland landscaped and connect with nature.

Bicycle and Pedestrian Amenities

Beyond bicycle and pedestrian infrastructure, there are various amenities that address the needs of the traveler. Employers and businesses almost always have enough automobile parking. The same does not always hold true for bicycles. Bicycle racks allow the traveler to securely park their property without fearing that it will be stolen or damaged. Water fountains, vending machines or nearby cafes provide the traveler with nourishment after their ride or walk. Public restrooms are also useful to both pedestrians and bicyclists. Showers and locker facilities allow employees to change into clean clothes. All of these amenities help to encourage non-motorized transportation.

There are many amenities available to bicyclists and pedestrians on Cape Cod. The Town pf Provincetown installed two public bicycle repair stations in 2018, where bicyclists can fill their tires or make a simple repair. The Hyannis Transportation Center has bicycle racks, public restrooms, water fountains, vending machines and other user amenities. In addition, the Cape Cod Regional Transit Authority (CCRTA) offers bicycle racks with space for two bicycles on each CCRTA bus. Bicycle racks, restrooms, food, and other amenities are also available at the Exit 6 Rest Area near the Barnstable Park-and-Ride Lot. The Steamship Authority Piers in Hyannis and Woods Hole offer restrooms and vending machines to customers who arrive by bicycle. Moreover, some employers offer bicycle and pedestrian amenities to their employees. According to the Massachusetts State Bicycle Plan, all such amenities address the "destination barriers" that bicyclists and pedestrians perceive, such as not being able to safely park their bicycle, showing up to work sweaty, or arriving at their workplace hungry and thirsty. By making non-motorized travel more attractive to potential users, more people will be inclined to ride a bicycle and walk to work.

Bicycle and Pedestrian Facility Accessibility and Mobility

Not everyone can ride a bicycle or walk as their primary mode of transportation. Users must live relatively close to where they work and shop in order to ensure a reasonable travel time. The low density of Cape Cod development is in this way not conducive to bicycle travel. Moreover, a certain level of fitness is necessary to deal with the physical exertion. On Cape Cod, where many residents are elderly, bicycling or walking may not be practical for some travelers. Despite these barriers, there are many potential users who can be targeted and encouraged to travel by bicycling or walking for its positive environmental, physical, and economic benefits.

Bicycle paths and routes can be made more accessible by ensuring that there are adequate entry points, safe roadway crossings, and proper signage. There is a tradeoff between entry points and roadway crossings, since roadways are often the place where bicyclists enter a bicycle path. As the number of entry points increase, so do the number of roadways bicyclists must cross in order to travel the path. Most Cape Cod bicycle path-roadway crossings have yellow stanchions or gates

that encourage bicyclists to stop and watch for vehicles before crossing. Two roadway crossings of the Cape Cod Rail Trail in Harwich and Brewster have signals which warn oncoming vehicles when bicyclists or pedestrians are approaching the intersection. Signage is also important to accessibility, since it directs users to and along the path. Posted maps, street signs, and signs listing local points of interest also help to direct travelers to their destinations. By implementing safety and signage measures such as these, bicycle and pedestrian facilities can become more accessible to both first time and frequent users.



FIGURE 41. West Yarmouth Road crossing of the Old Townhouse Road Trail



FIGURE 42. Meetinghouse Road crossing of the Harwich-Chatham Extension of the Cape Cod Rail Trail

Because bicycles are small and lightweight, they are portable and easy to transfer from mode to mode. Bus services, such as the CCRTA, Plymouth and Brockton, and Peter Pan / Bonanza Bus Lines, can accommodate cyclists with racks and storage areas. The Steamship Authority and other ferry services allow passengers to bring their bicycles for a fee. Special reservations can also be made with air carriers in order to transport bicycles. For this reason, bicycle transportation can help to connect users to other modes of transportation.

Alternative bicycle routes Two of the region's primary travel corridors, Route 6A and Route 28 are popular with bicyclists for their directness and convenience, but they lack bicycle accommodations and are hazardous for bicycling due to high traffic volumes and speeds and limited space. Providing bicycle facilities on these roads is challenging and infeasible in some locations. Route 6A is a state-designated Scenic Byway with a narrow right of way with no additional space available. Route 28 has sufficient right of way in most areas but providing accommodations for bicycling requires significant analysis and funding and will take years. Bicyclists can avoid using the two corridors (and other busy roads as well) by choosing adjacent roads and creating alternate routes. The goal of establishing these routes is to provide for the "best" bicycle travel within, among, and through the attractive areas of the Cape while avoiding narrow and busy roads.

Town planning officials and concerned citizens are invited to comment and provide suggestions on specific routing. The mid-term goal is to provide online maps and on-road signage to inform the public (both to help cyclists with way-finding and to alert motorists of potential bicyclists). Longer-term, those segments of the routes that pose the greatest difficulty in safely biking then will be considered for improvements or for the development of other alternatives. Cape Cod Commission staff developed a proposal for two "alternative" regional routes: : a bayside bike route complementary to Route 6A connecting the Cape Cod Canal in Bourne to Rock Harbor Road in Orleans (the so-called "Route 6B"); and, a Southside bike route complementary to Route 28 connecting Woods Hole in Falmouth to Chatham Light (the so-called "Route 28B"). Route 6B is presented below. "Route 28B" is discussed below in the Recent Studies section.

"Route 6B" – Northside Bicycle Route

The following figure shows a potential on-road bicycle route from the Cape Cod Canal area in Sandwich to the area including the Eastham Rotary and Rock Harbor at the Orleans/Eastham town line. Some non-roadway alternatives (such as the Cape Cod Canal multi-use path are not shown). The goal of establishing the Northside Route is to provide for the "best" bicycle travel within, among, and through the areas north of Route 6 in the towns from Sandwich to Orleans - and to generally avoid the narrow and busy Route 6A.

This alternative provides direct access to Route 6A and does not require cyclists to travel more than about one and a half times the distance that would be traveled if the cyclist stayed on Route 6A. Additionally, the alternate route still provides a showcase for the scenic and historic qualities of the district.

This figure was developed as part of the Route 6A Corridor Management Plan update, released by the Commission in 2010. The maps indicate useful alternatives to Route 6A as well as connector routes. The sections of Route 6A identified in red indicate road segments where no viable alternative exists.

FIGURE 43. Route "6B" logo



Town-by-town maps showing the main “Route 6B” route are shown in subsequent figures.

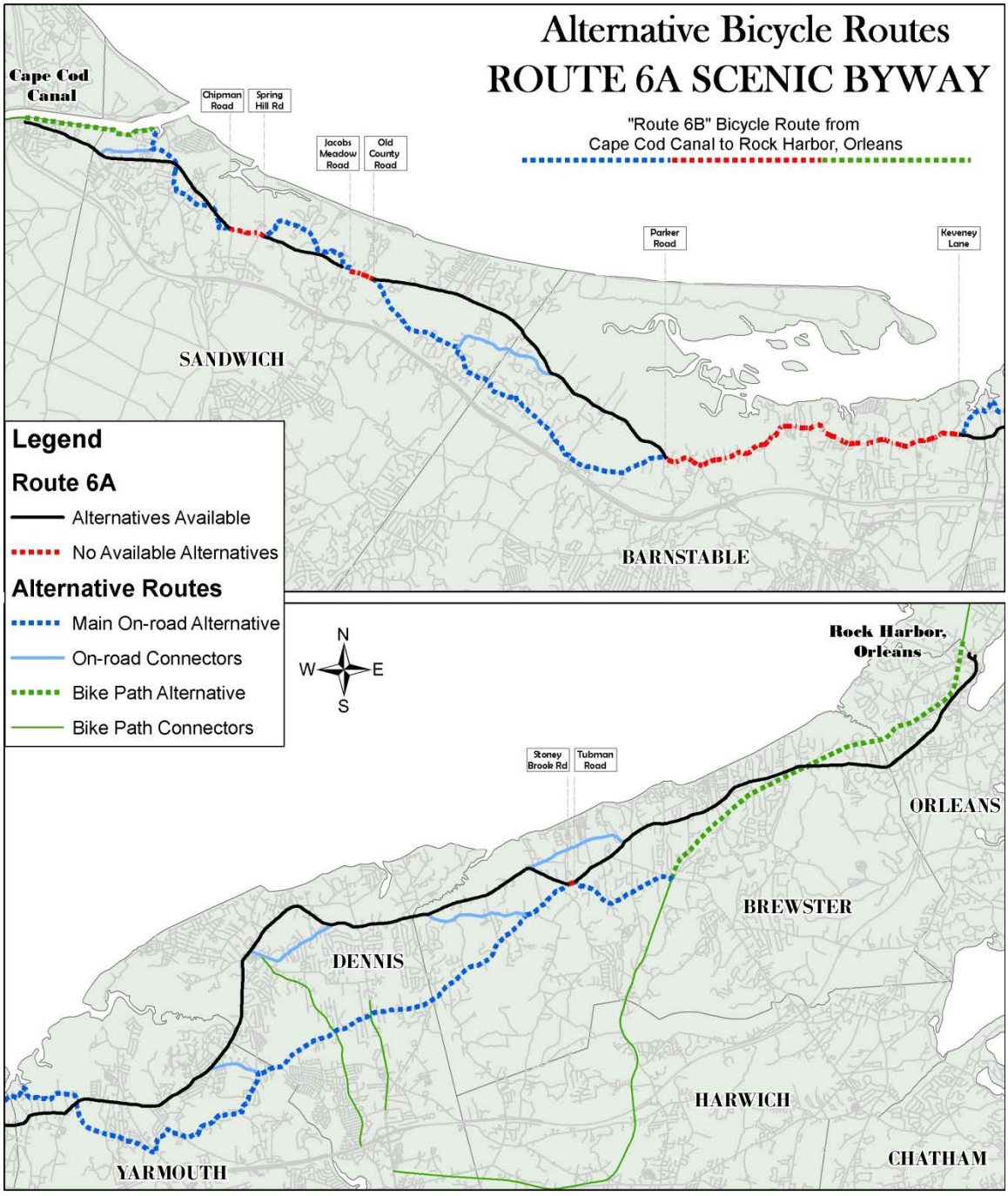


FIGURE 44. Route "6B" – Bayside Bicycle Route

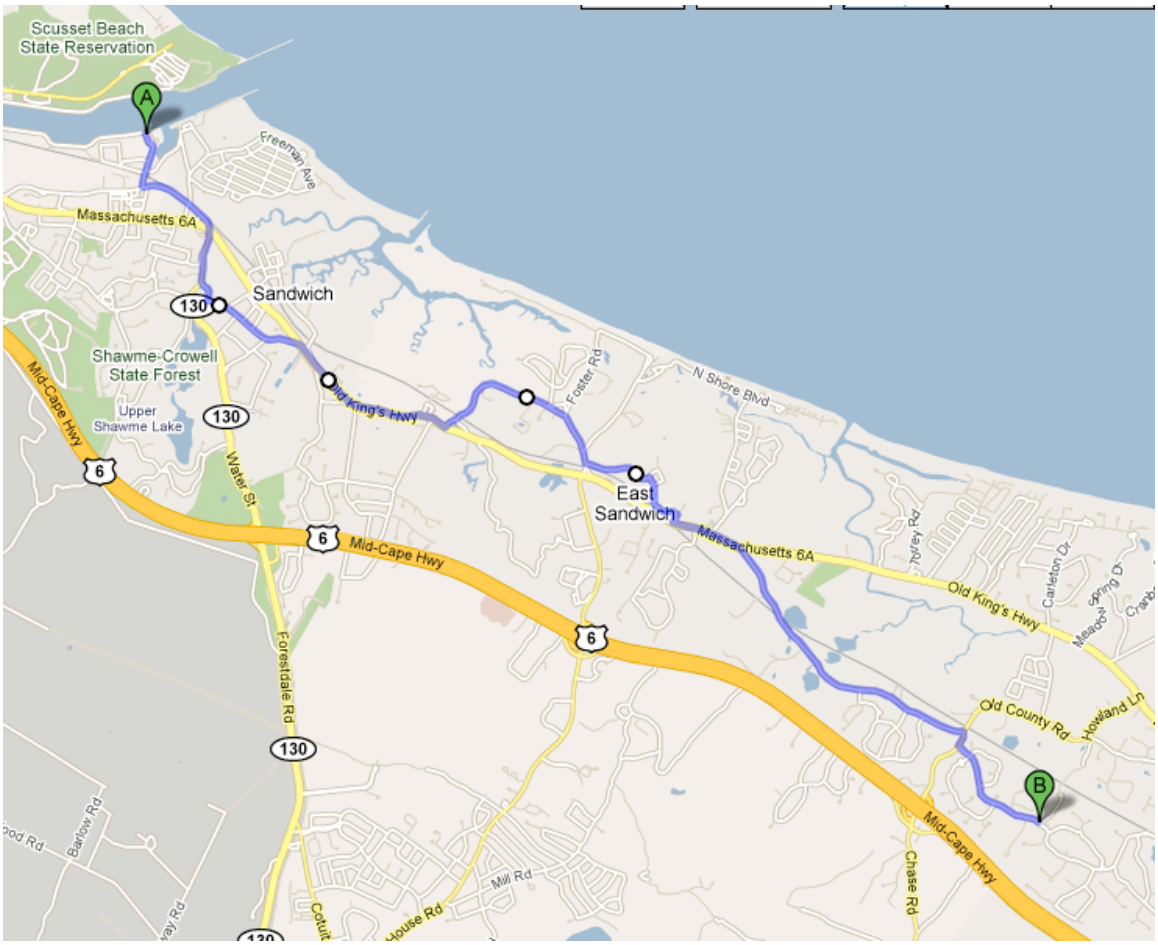


FIGURE 45. Potential Route "6B" in Sandwich

(Source: Cape Cod Commission, Google Maps)

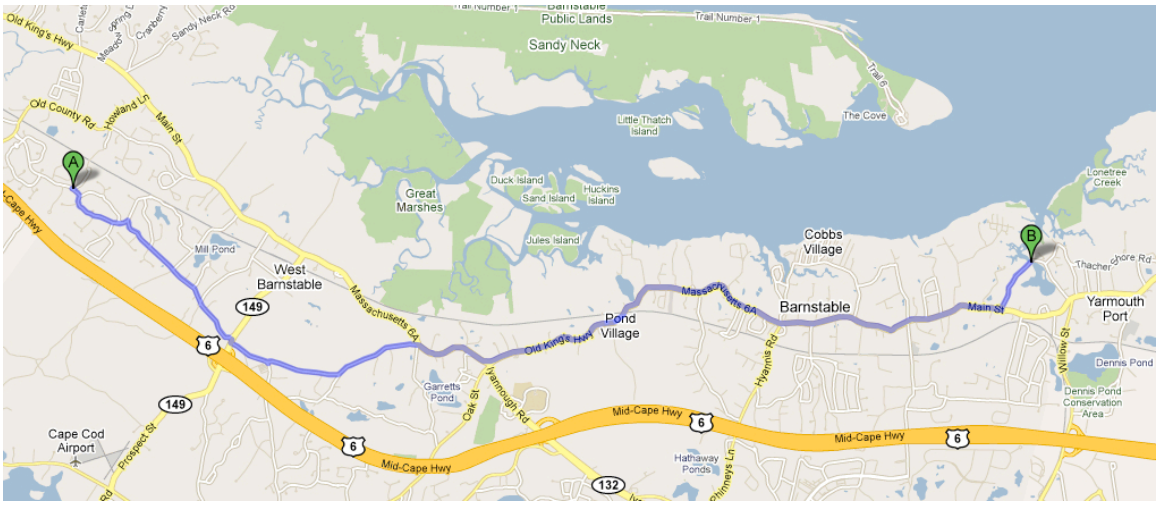


FIGURE 46. Potential Route "6B" in Barnstable
(Source: Cape Cod Commission, Google Maps)

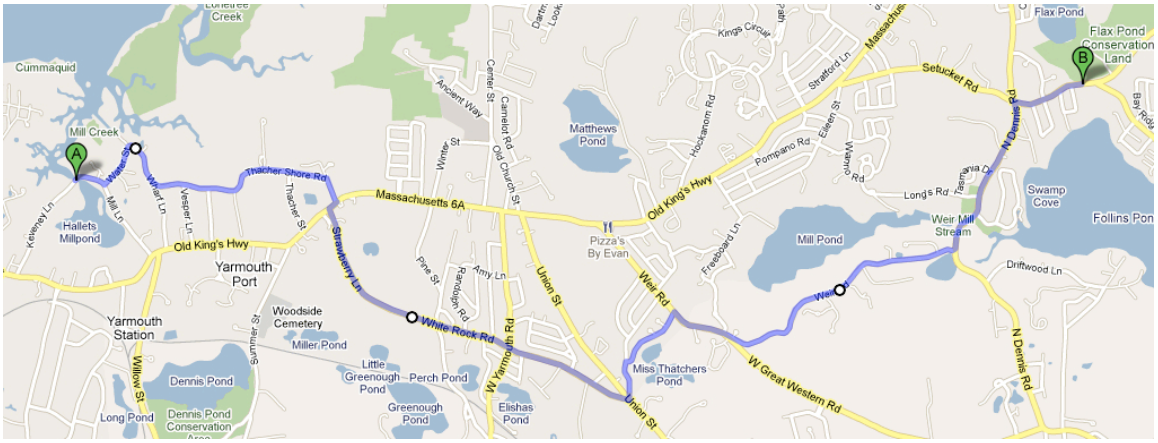


FIGURE 47. Potential Route "6B" in Yarmouth
(Source: Cape Cod Commission, Google Maps)

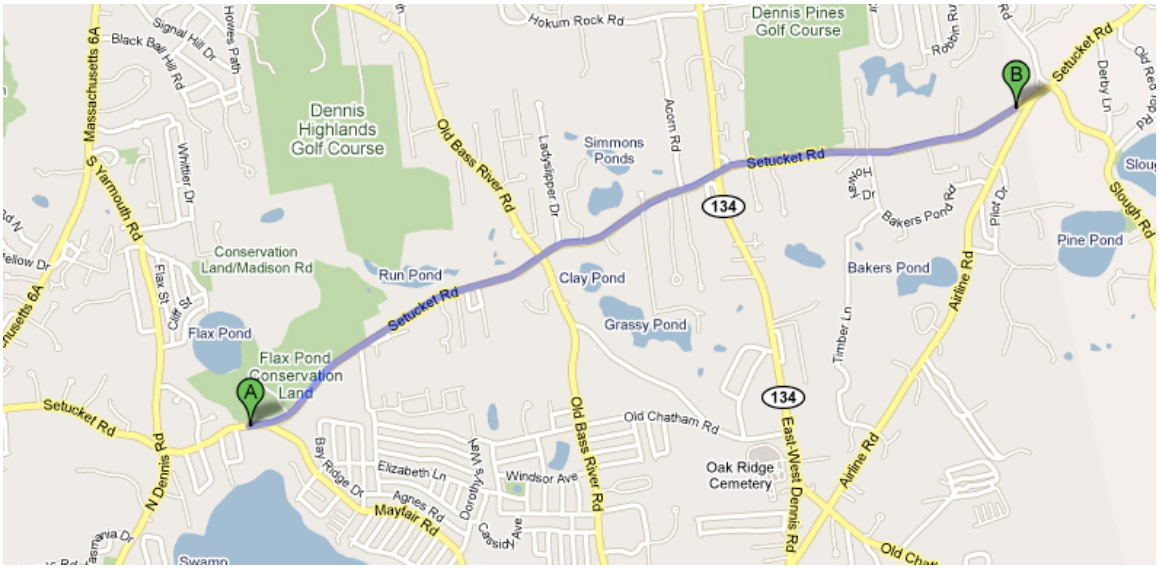


FIGURE 48. Potential Route "6B" in Dennis

(Source: Cape Cod Commission, Google Maps)

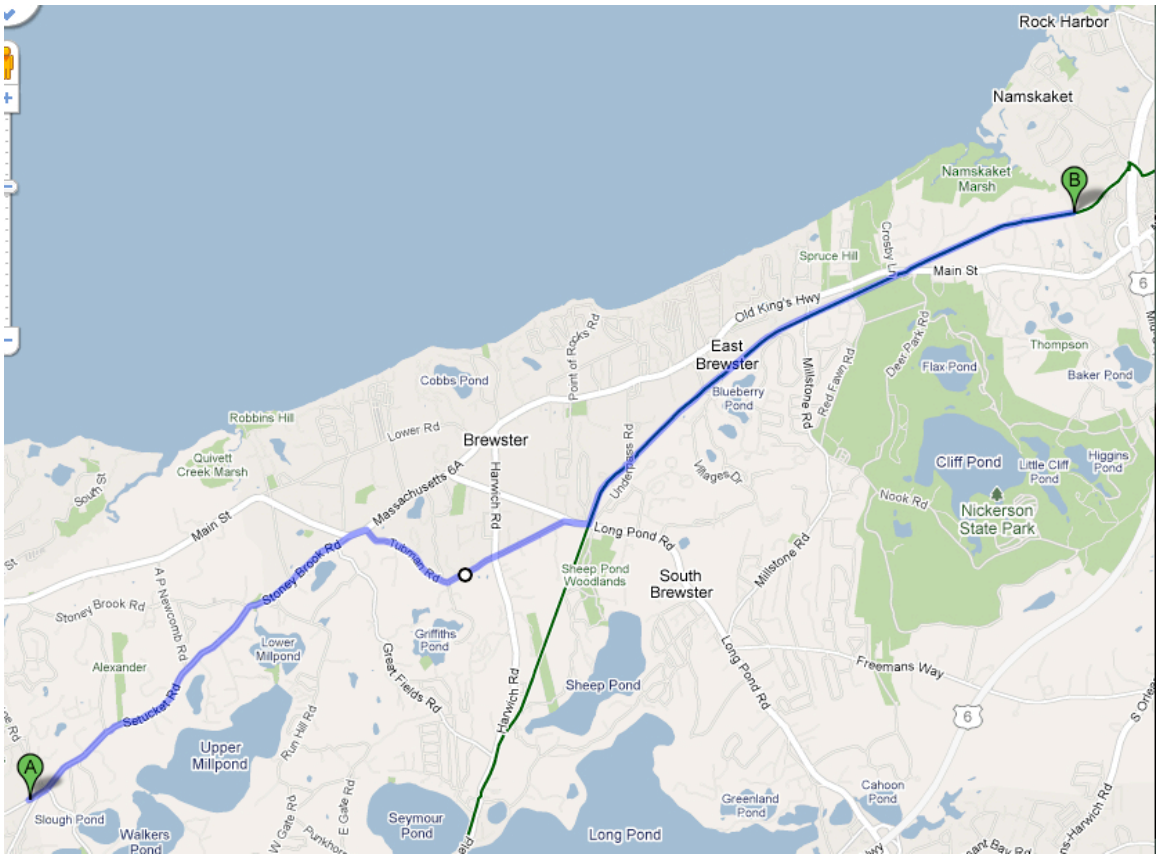


FIGURE 49. Potential Route "6B" in Brewster

(Source: Cape Cod Commission, Google Maps)

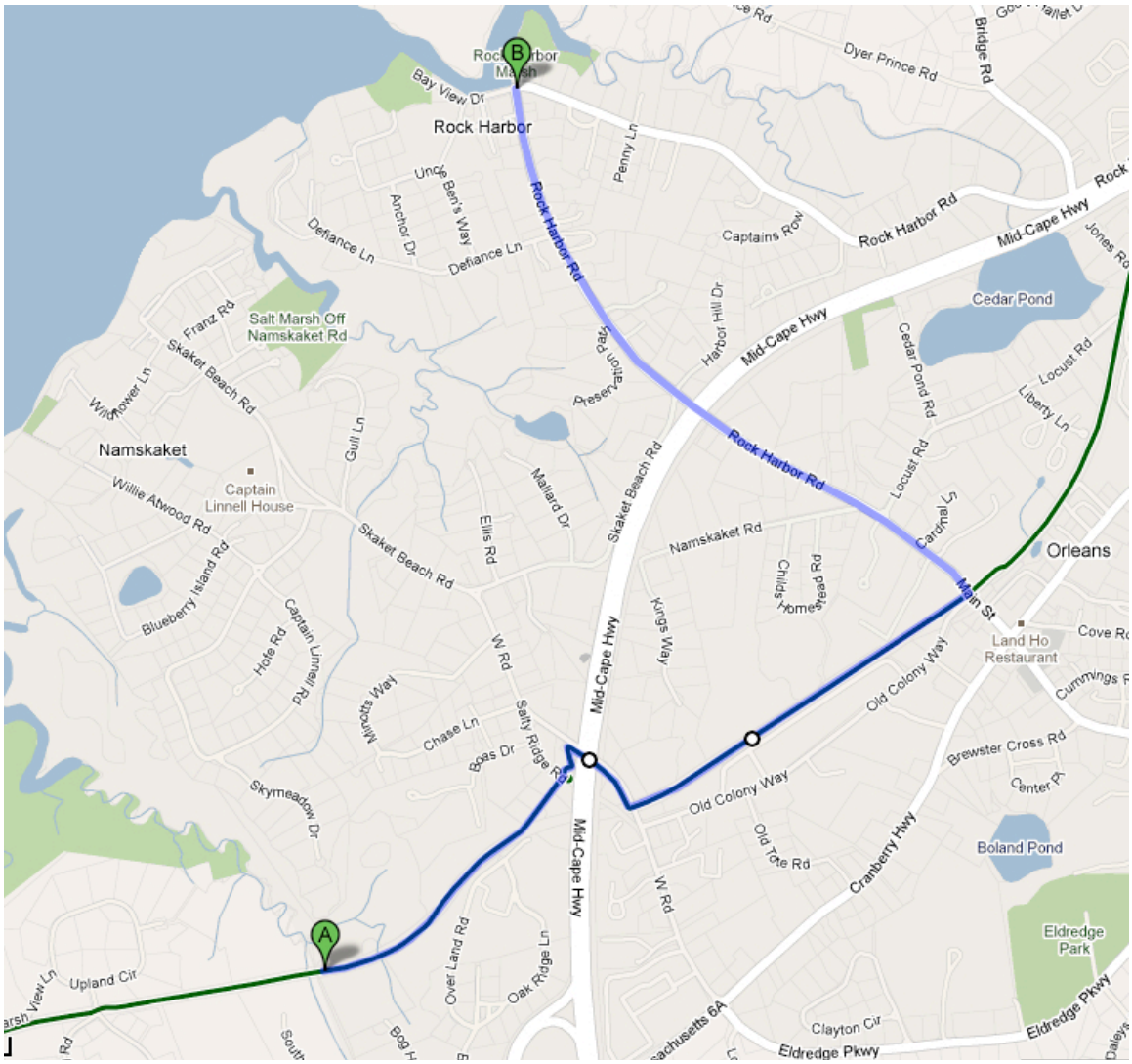


FIGURE 50. Potential Route "6B" in Orleans

(Source: Cape Cod Commission, Google Maps)

RECENT & ONGOING BICYCLE/PEDESTRIAN PLANNING EFFORTS

This section summarizes recent and ongoing bicycle & pedestrian studies and planning efforts underway by the Cape Cod Commission and/or Cape Cod towns. More information about these studies as well as links to previous studies/plans is available for many of these efforts at:

www.capecodcommission.org/bikeped

Route 6 Truro and Provincetown Bicycle Lane Extension Study

This study presents alternatives for accommodating bicycles on the four-lane section of Route 6 between North Truro and Provincetown as an interim step until full implementation of the Outer Cape Bicycle and Pedestrian Master Plan, which recommends a separated multi-use path adjacent to Route 6.

Route 28 Critical Locations bicycling network connectivity

This study provides alternative route recommendations for bicyclists to avoid travel on Route 28 . A description and maps of the recommended route follow below.

"ROUTE 28B" – SOUTHSIDE BICYCLE ROUTE

The following figures show a potential on-road bicycle route from the Woods Hole in Falmouth to Chatham Light. The goal of establishing the Southside Route is to provide for the "best" bicycle travel within, among, and through the areas south of Route 6 in the towns from Falmouth to Chatham - and to generally avoid the narrow and busy Route 28.

This alternative provides direct access to Route 28 and does not require cyclists to travel more than about one and a half times the distance that would be traveled if the cyclist stayed on Route 28. Additionally, the alternate route still provides a showcase for the scenic and historic qualities of the area.



FIGURE 51. Route "28B" logo

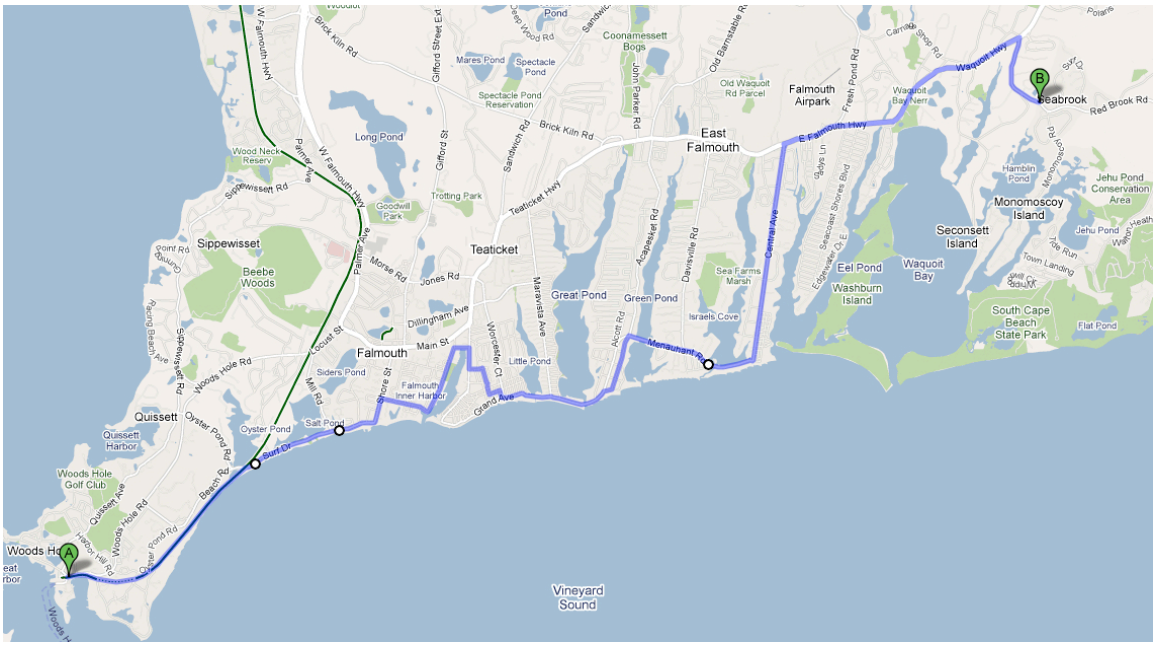


FIGURE 52. Potential Route "28B" in Falmouth

(Source: Cape Cod Commission, Google Maps)

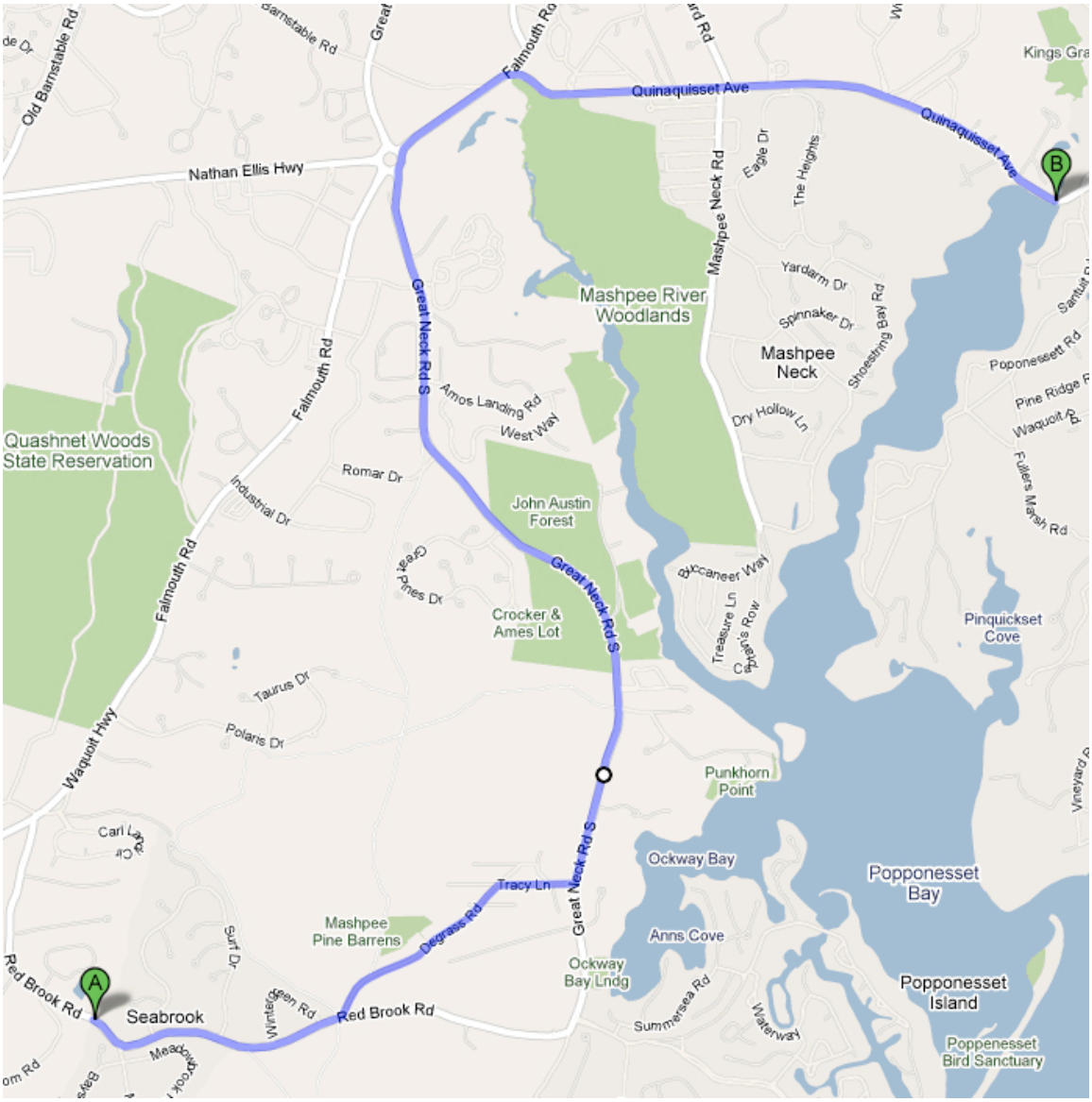


FIGURE 53. Potential Route "28B" in Mashpee

(Source: Cape Cod Commission, Google Maps)

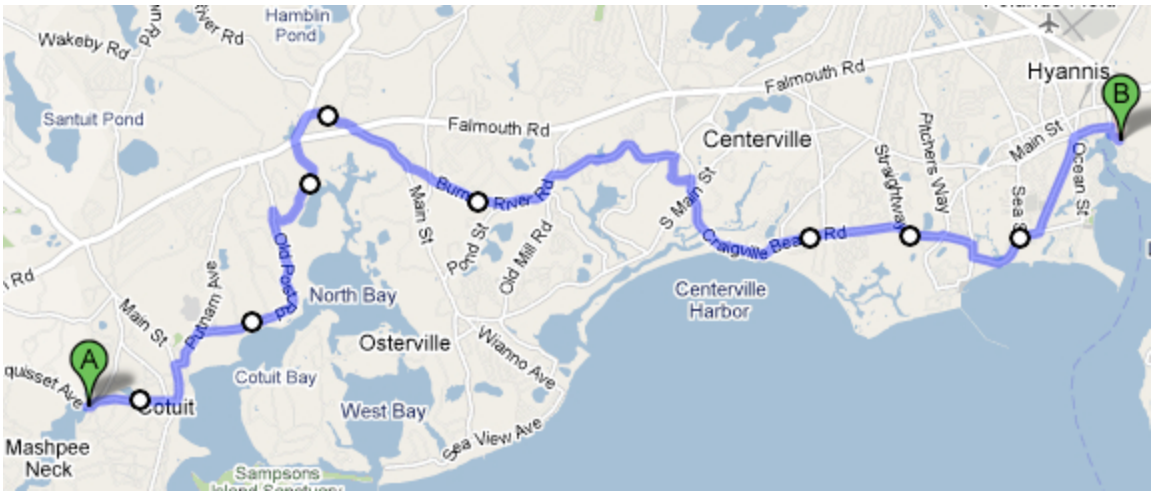


FIGURE 54. Potential Route "28B" in Barnstable

(Source: Cape Cod Commission, Google Maps)

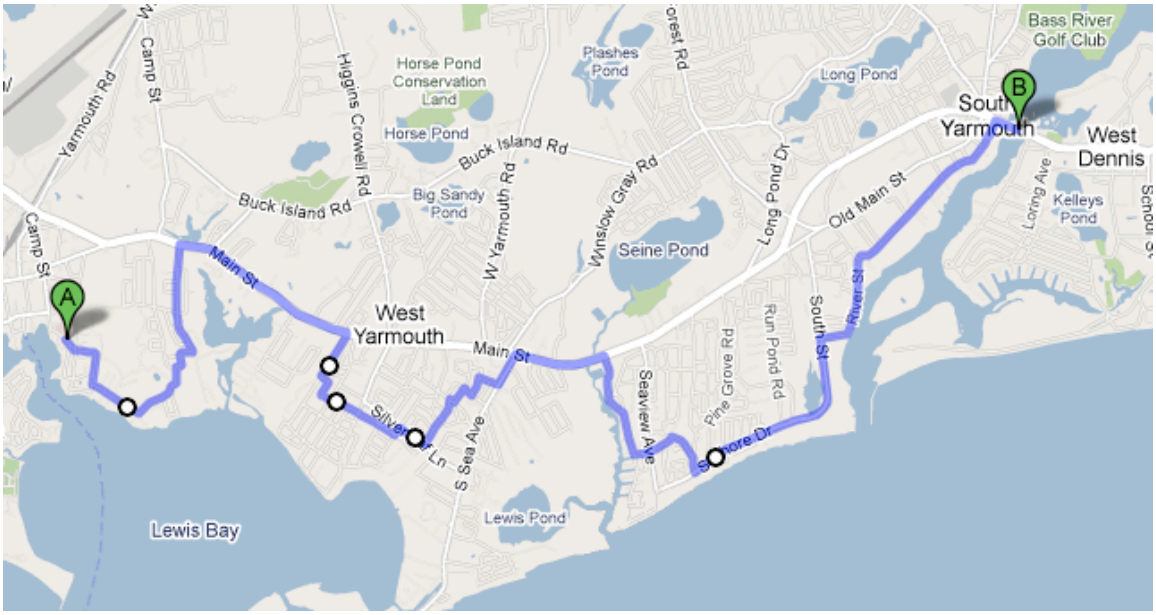


FIGURE 55. Potential Route "28B" in Yarmouth

(Source: Cape Cod Commission, Google Maps)

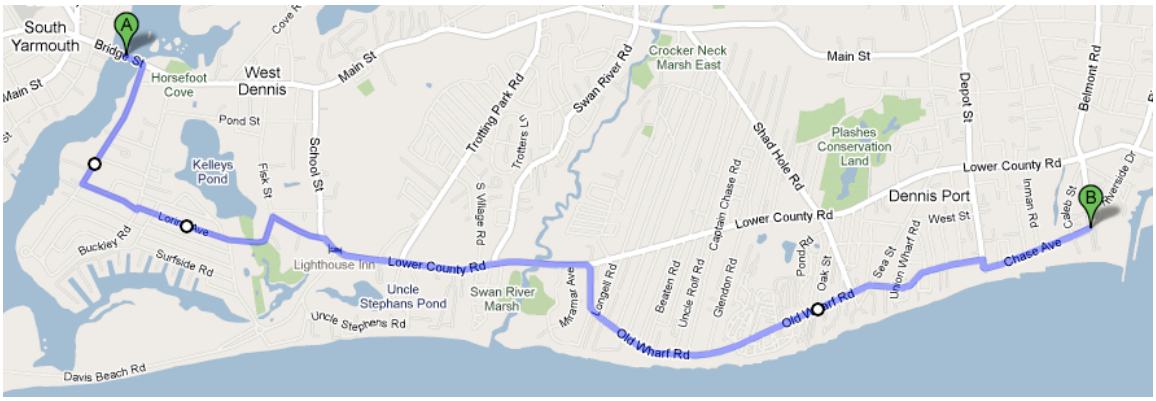


FIGURE 56. Potential Route "28B" in Dennis
(Source: Cape Cod Commission, Google Maps)

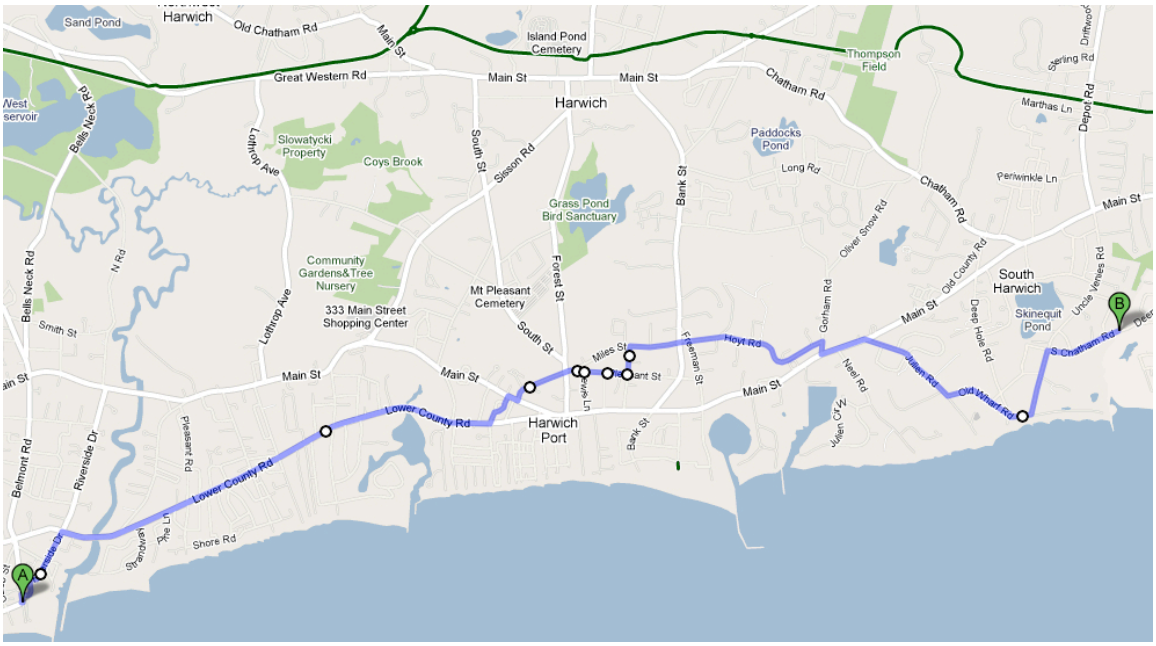


FIGURE 57. Potential Route "28B" in Harwich
(Source: Cape Cod Commission, Google Maps)

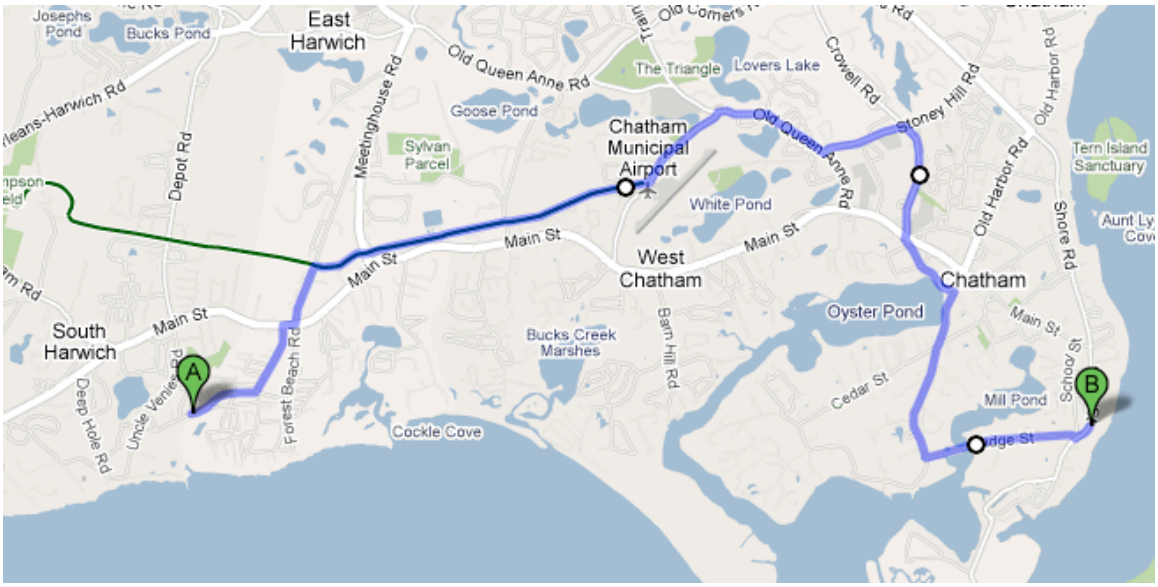


FIGURE 58. Potential Route "28B" in Chatham

Cape Cod Safe Routes to Schools Bicycle/Pedestrian Network Facility Connections

This 2017 study provides recommendations for improved connectivity between schools and the bicycle and pedestrian facility network.

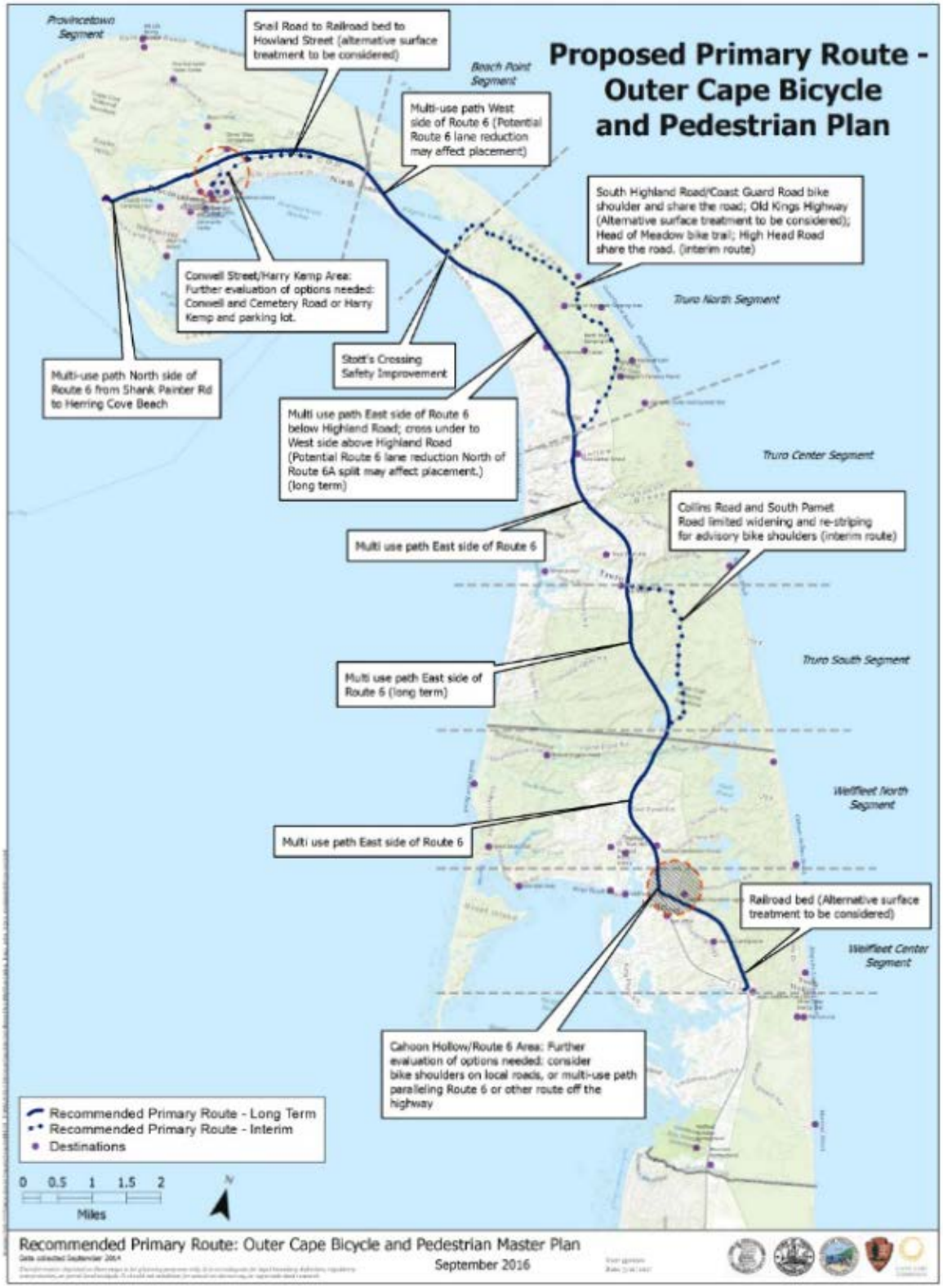
Shining Sea Extension Feasibility Study

This 2017 study presents potential alternatives for extending the Shining Sea Bikeway from its terminus in North Falmouth to the Cape Cod Canal bike paths.

Outer Cape Bicycle and Pedestrian Master Plan

This 2016 study provides a recommended alternative for extending the Cape Cod Rail Trail from South Wellfleet to Truro and Provincetown. It also provides recommendations for bicycle and pedestrian connections to destinations in the three communities and Cape Cod National Seashore. The project was funded by the National Park Service who contracted with the Cape Cod Commission to write the plan, in partnership with the three Outer Cape towns. A steering committee comprised of two representatives from each community (town staff and bicycle committee member) plus CCNS and CCC staff guided development of the plan. The map below presents the primary route and secondary route recommendation.

FIGURE 59. Proposed Primary Route for Outer Cape Bicycle and Pedestrian Plan



Town of Falmouth Plan for an Improved Transportation Network for Bicycling

The 2015 Falmouth Bike Plan is a result of collaboration between the Town of Falmouth's Bikeways Committee and the transportation staff of the Cape Cod Commission.

Between 2010 and 2012 there were 43 reported crashes involving bicycles in Falmouth. It is widely accepted that many more occur but are unreported. This fact serves as one catalyst for action. The Plan identifies numerous problems on roads that would be desirable for bicycling if corrective actions such as reducing motorist speed and installing wider shoulders or bike lanes were implemented to encourage people who want to ride bicycles to feel safe.

The Plan's recommendations focus on the "Three E's" of bicycle transportation planning: Engineering, Education and Enforcement. Engineering includes making improvements for safer road crossings, separated multi-use paths, bike lanes, and "share the road" signage. Engineering also includes appropriately reducing the speed of motorized traffic by introducing traffic calming techniques. Education includes fostering partnerships throughout the town to educate the general public about proper bicycle riding and compatible car driving skills. Enforcement includes working with our police department to help publicize and protect the rights and responsibilities of cyclists, and to better enforce the rules for motorists interacting with vulnerable road users.

The Falmouth Bikeways Committee's Vision of Falmouth in The Year 2020:

Falmouth is a great place to both live and to visit because its bike-friendly culture and infrastructure yield calm roads, clean air, and a healthy populace in a vibrant, sustainable economy.

GOALS:

- To engineer the infrastructure of Falmouth to support bicycling for transportation and recreation. A system of well-marked, safe roads and paths make it an attractive place for children and adults to bicycle to their daily destinations. When cyclists arrive at their destinations there are secure facilities to park their bicycles.
- To promote educational and bicycling programs that support public health and tourism, and that reduce air pollution, traffic and parking problems. Bicycling is an integral and appreciated part of the community culture.
- To foster safe, informed, and respectful interactions among people who walk, drive bicycles and cars on Falmouth's roads and paths. Drivers and cyclists understand their respective responsibilities, and police support both through enforcement and education.

A summary of recommendations developed by the committee to address bicycling needs in Falmouth are presented in the final report.

Connecting Town Centers to the Regional Pedestrian & Bicycling Network on Cape Cod

Cape Cod's town centers represent the region's primary locations for economic and social activity. These "hub" locations generally contain a mix of residential, commercial and civic uses and attract people for shopping, dining, and other services as well as for jobs/work. Making the region's town centers easily accessible to bicycles and pedestrians is important for increasing transportation options and encouraging people to bicycle or walk, rather than drive – especially for short trips. This is beneficial for traffic congestion, for the environment, for public health, and for personal convenience. For people who don't drive, having safe and convenient bicycle and pedestrian connections to town center services and activities is essential.

This study reviews connectivity between town center areas and existing bicycle paths and routes and includes identification of town center areas where sidewalks are needed. The purpose of the study is to identify key areas appropriate for new or improved bikeway connections, as part of the regional goal to facilitate bicycling and walking as viable transportation modes on Cape Cod.

Sandwich Pedestrian/Bicycle Planning – Improved Pedestrian and Bicycle Connections with the Cape Cod Canal Multi-use Path

The plan contains a set of recommended improvements for facilitating bicycling connections between the Cape Cod Canal and downtown Sandwich, as shown in the following figure:



FIGURE 60. Sandwich Bicycle/Pedestrian Planning - Recommended Routes

Closing the Gaps: Connecting Cape Cod's Bicycle and Pedestrian Network to Transit Routes

The purpose of this effort, released in late 2013, was to review connectivity of existing public transit (bus) routes with existing bicycle routes and paths and recommend improvements to eliminate gaps in connectivity. The review includes sidewalk accessibility along the bus routes. The report also provides an overview of bicycle and pedestrian planning on Cape Cod, building upon previous studies and plans and updating the region's bicycle route/path and sidewalk data. The following table provides a compilation of potential transit route-bicycle path/route connectors. Most of the recommendations for bicycling improvements entail share the road signage and sharrows/striping due to the limited scope of the project; further analysis would be needed to evaluate the feasibility of providing additional bicycling facilities. Several locations identified in the report have been improved or proposed for improvements since its completion.

TABLE 4. Town Summaries: Recommended Bicycle Connections to Transit Routes

TOWN	BIKE/PED/TRANSIT CONNECTOR	DESCRIPTION	NOTES
Barnstable	Route 28 sidewalks	Bus route pedestrian access	No sidewalks between Route 149 and Stop & Shop plaza or Marstons Mills Marketplace.
Bourne	Perry Ave connector	Connects Canal bike path to Main Street (bus route). Share the road–striping, signage, sharrows.	Connects to 3 Mile Park, but not direct access to canal path.
	Old Bridge Road connector	Connects Canal bike path to Main Street (bus route). Share the road –striping, signage, sharrows.	Direct connection.
	County Road sidewalk	Bus route pedestrian access	Lacks sidewalks
	Route 28A/Sandwich Road sidewalk	Bus route pedestrian access	Lacks sidewalk most of route.
Brewster	Thad Ellis Road connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, signage, sharrows. 1/4-mile direct connection.	
	Underpass Road connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, sharrows, signage	
	Millstone Road connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, sharrows, signage	
	Route 137 connector	Connects Route 6A (bus route) to CCRT. On	

		road connection – striping, signage, but paved shoulder may be feasible in sections	
	Route 124 connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, signage	
	Route 137 sidewalk	Bus route pedestrian access	No sidewalks on Route 137
Chatham	Route 137 connector	Connects Route 28 (bus route) to CCRT. On road, shoulders, striping, signage	
	Sam Ryder Road connector	Connects Route 28 (bus route) to CCRT. On road connection – striping, signage, sharrows	
	George Ryder Road connector	Connects Route 28 (bus route) to CCRT. On road connection with striping and shoulders or bike lane. Off road path may be feasible.	
	Route 28 sidewalk	Connects Route 28 (bus route) to CCRT	Most of route has sidewalk but condition is poor in some locations. If enhanced could accommodate bikes.
Dennis	Shad Hole Road connector	On road connection – striping, sharrows, signage	
	Depot Street connector	Connects Route 28 (bus route) to Lower County Road bike route. On road connection – striping, sharrows, signage	
	Sea Street connector	Connects Route 28 (bus route) to Lower County Road bike route. On road connection – striping, sharrows, signage.	
	Route 134 sidewalk	Bus route pedestrian access.	Route 134 lacks sidewalk north of Patriot Square
	Route 28 sidewalk	Bus route pedestrian access	Gaps in connectivity outside of Dennisport.
Eastham	Governor Prence Road connector	Connects Route 6 (bus route) to CCRT. On road connection – striping, sharrows, signage. NPS received funding for flashing beacon crosswalk at Route 6 intersection for connection to Fort Hill.	
	Samoset Road connector	Connects Route 6 (bus route) to CCRT. On road connection – striping, sharrows, signage	

	Route 6 sidewalk	Bus route pedestrian access	East side of Route 6 lacks sidewalks, Town Hall and Brackett Road commercial areas are the bus stop locations.
	Bike/Ped/Transit Connector	Description	Notes
Falmouth	Route 151/Sandwich Road connector	Connects Route 151 (bus route) to Sandwich Road bike route. Signage to direct riders to bus stop location (at gas station set back from road).	
Harwich	Route 28 sidewalk	Bus route pedestrian access.	Gaps in sidewalk connectivity outside of Harwichport to West Harwich. In 2010 bike/ped improvement plan.
Mashpee	Route 28 sidewalk	Bus route pedestrian access	Some locations without sidewalk.
	Route 151 sidewalk	Bus route pedestrian access	Sidewalk at school and Mashpee Commons. Town plans to extend bike path to Falmouth line.
Orleans	Bay Ridge connector	Connects Route 6A (bus route) to CCRT. On road –striping, sharrows, signage.	Involves access through private property.
	Route 28 sidewalk	Bus route pedestrian access	No sidewalks north of Finlay Road. Narrow shoulder width.
	Main Street connector	Connects Route 6A (bus route) to CCRT. On road –striping, sharrows, signage	
	West Road connector	Connects Route 6A (bus route) to CCRT. Also connects gap in bike path. On road – striping, sharrows, signage.	
Provincetown	Shank Painter connector	Connects Shank Painter Road (bus route/stop) to Bradford Street bike route. On road. Bike lane or paved shoulders, striping.	Road lacks sidewalk in most locations Heavy volume of bike and pedestrian traffic.
Sandwich	Merchants Square connector	Connects Route 6A bus route to proposed Tupper Road bike route. On road through plaza Signage, sharrows, striping	
Truro	Route 6 sidewalk	Bus route pedestrian access	No sidewalks except for

			segment between school and police station. 4' shoulders along much of route. May be addressed in Outer Cape Bicycle Pedestrian Master Plan.
	Bike/Ped/Transit Connector	Description	Notes
Wellfleet	Old County/Blackfish Variety connector	Connects Route 6 (bus route) to CCRT. Crosswalk, striping to improve connection between CCRT and bus stop/Old County Road.	May be addressed in Outer Cape Bicycle Pedestrian Master Plan.
	Springbrook connector	Connects Route 6 (bus route) to CCRT	Other options nearby to connect West Road and Audubon to CCRT cross private property.
Yarmouth	Higgins Crowell connector	Connects Route 28 (bus route) to bike path and proposed CCRT extension. On road. Striping, sharrows, signage	

Yarmouth Road Corridor Study

Yarmouth Road in Barnstable experiences significant vehicle queues during peak hours of operation. The corridor is the primary access for some Cape towns to the Cape Cod Hospital. Seasonal and peak hour congestion often cause delays for emergency vehicles en route to the Hospital. The intersection of Yarmouth Road and Route 28 in Barnstable is a known high crash location and is identified in the Hyannis Access Study as an intersection in need of improvements. Yarmouth Road serves as an important access road into Hyannis Center, which accommodates both commercial and business development. Hyannis Center is a Growth Incentive Zone. A viable Yarmouth Road corridor is significant for many modes of transportation, including walking, biking, automobile, transit and rail. The Hyannis Transportation Center is located off Route 28, a short distance from the Yarmouth Road/Route 28 intersection. Information on the study is available at:

www.capecodcommission.org/departments/technicalservices/transportation/projects/olderprojects

After many months of review and public input, one concept was recommended: Concept 1a. This concept includes a multi-use path (bike path) connecting the Hyannis Transportation Center to a point just south of Route 6. The towns of Yarmouth and Dennis are currently planning to extend the existing Cape Cod Rail Trail just east of Willow Street (south of Route 6).

Concept 1a is a continuation of the four-lane divided Willow Street roadway that currently exists near Route 6 Interchange 7 to the Route 28/Yarmouth Road intersection in Barnstable and uses a

westerly alignment at the Route 28/Yarmouth Road intersection. The cross section and concept plan are shown in the following figures:

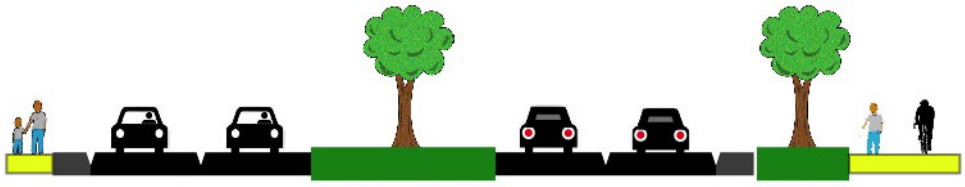


FIGURE 61. Yarmouth Road Proposed Cross Section (looking southerly)

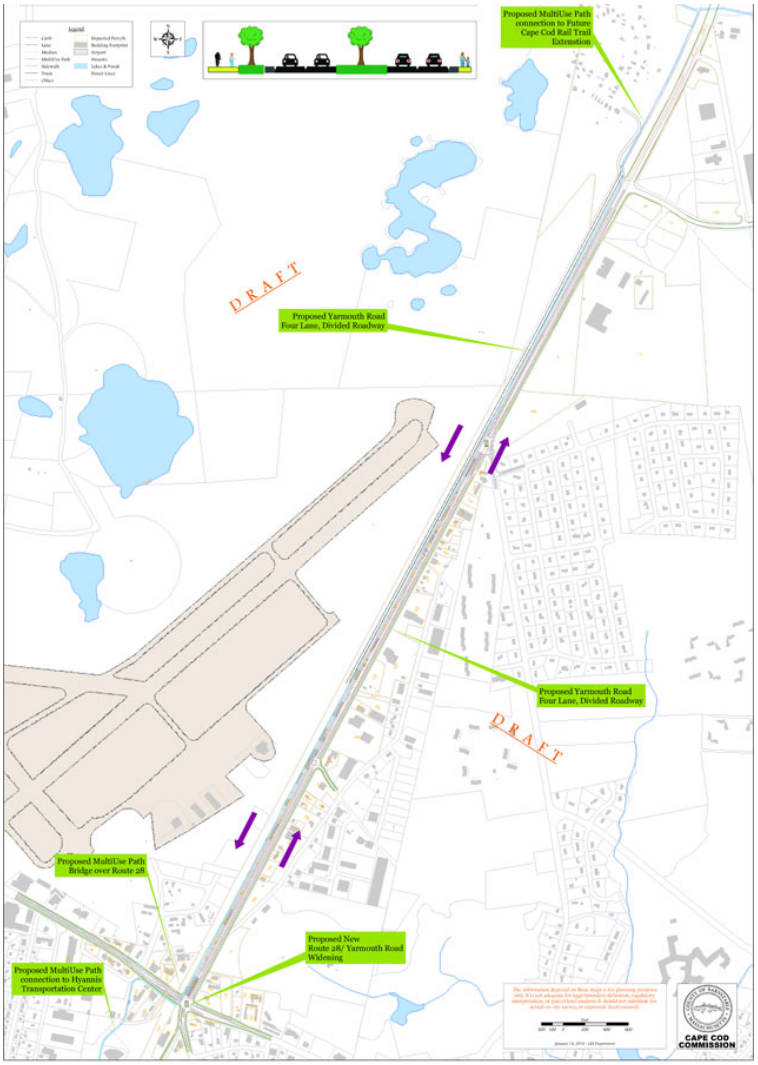


FIGURE 62. Yarmouth Road Recommended Concept Plan

Harwich Bicycle/Pedestrian/Transit

As part of an effort to enhance the economic development of Saquatucket Harbor in Harwich Port, the Town of Harwich sought technical assistance from the Cape Cod Commission to provide safe and effective pedestrian and bicycle facilities between the Cape Cod Rail Trail/Old Colony Rail Trail and Route 28, with a specific focus on a connection between Harwich Center and Harwich Port.

The study includes several recommendations for better bicycling and pedestrian access. The following figure includes a summary of recommended bicycle and pedestrian enhancements in the study area:

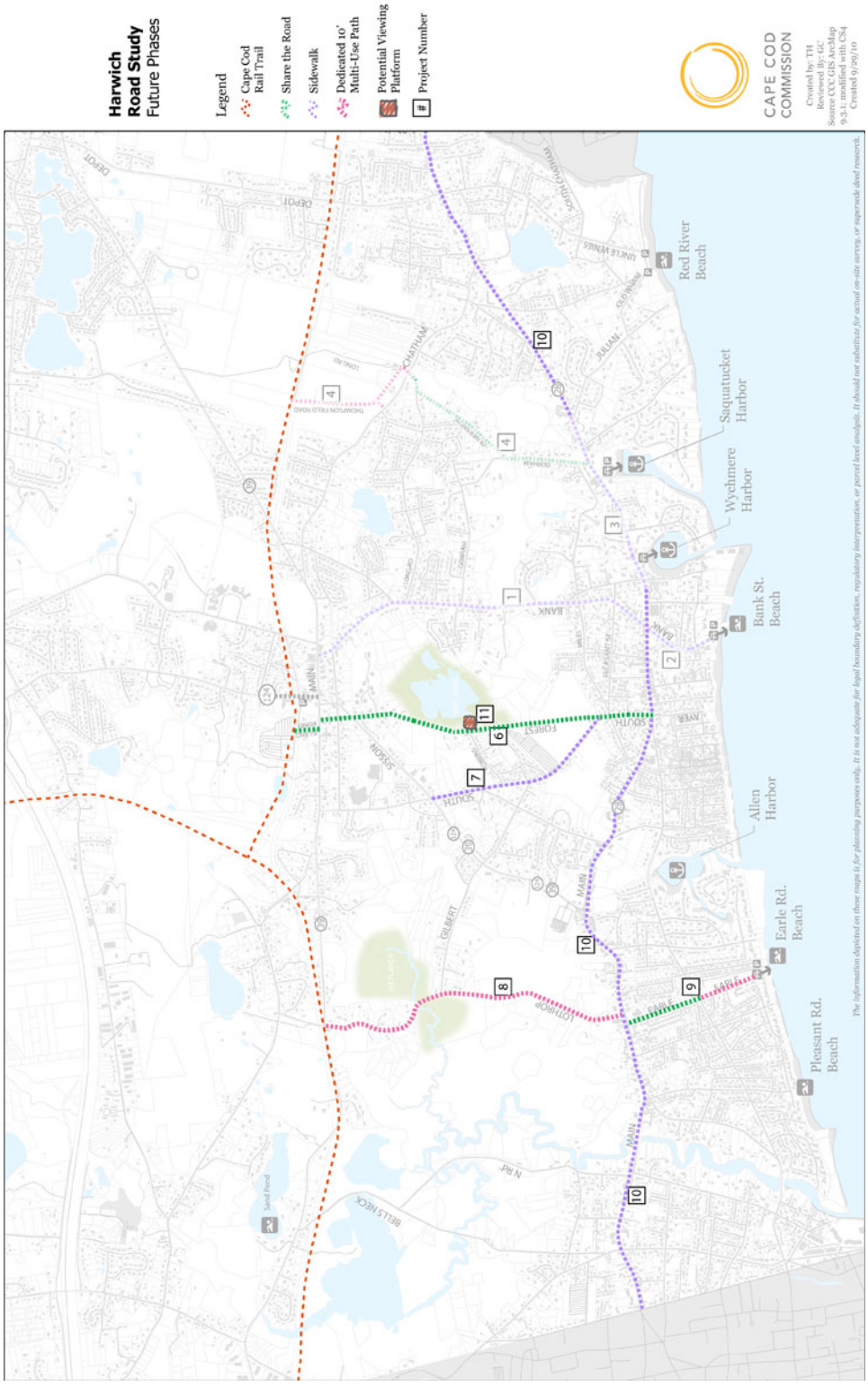


FIGURE 63. Harwich Bicycle/Pedestrian/Transit Study Recommendations

Barnstable

The town of Barnstable has a comprehensive Open Space and Recreation Plan. The plan is available from the Town of Barnstable's website at:

http://www.town.barnstable.ma.us/CommunityPreservation/CPA%20Plan.pdf

As part of this effort, town-wide mapping of existing and proposed improvements for bicycling & pedestrian accommodation are shown in the following figure:

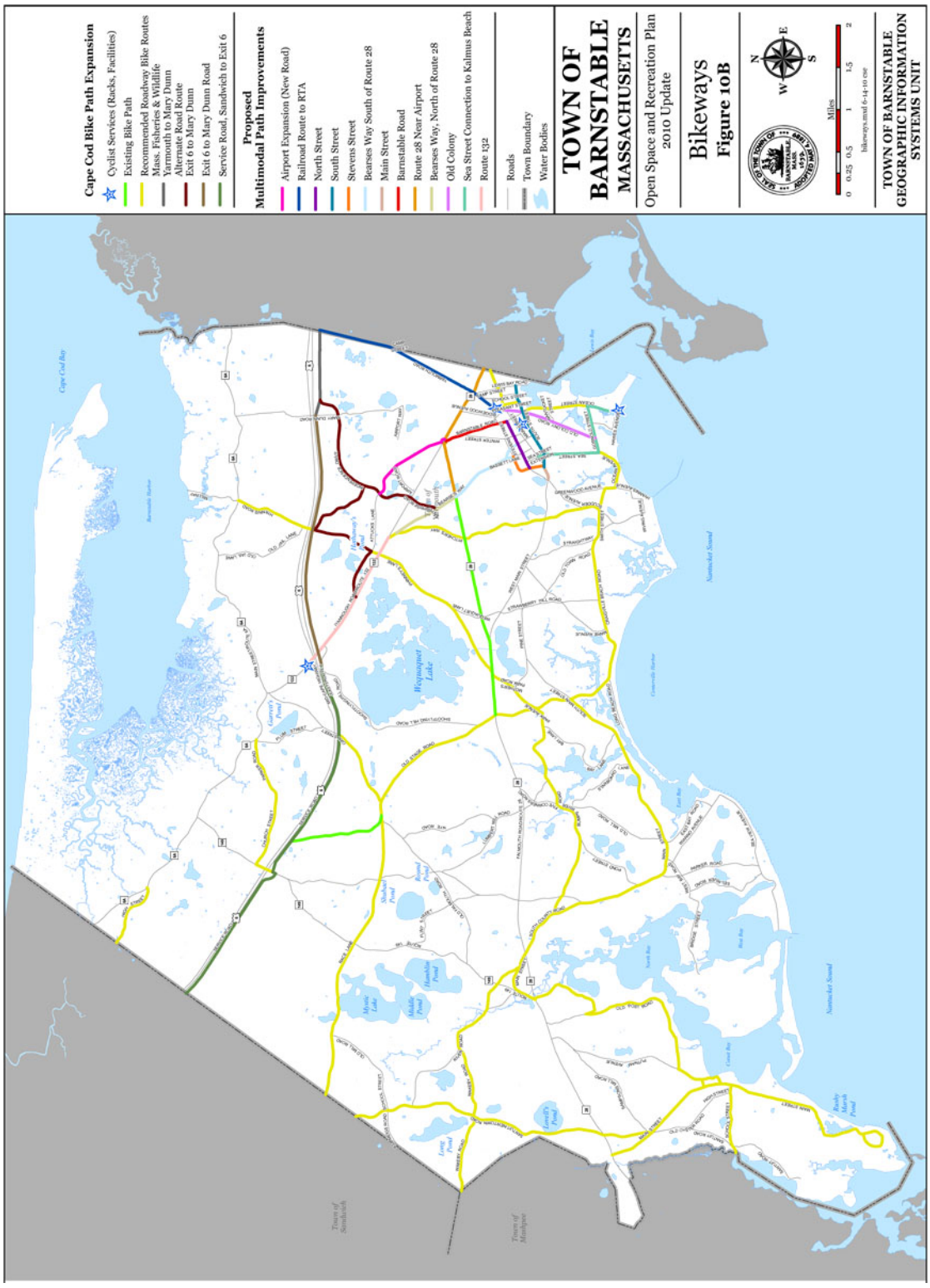


FIGURE 64. Barnstable Bicycling & Pedestrian Planning

Dennisport Revitalization Master Plan

The Dennis Port Revitalization Master Plan, produced by a consultant under the leadership of the Dennis Port Revitalization Committee contains recommendations for an interconnected bicycling network.

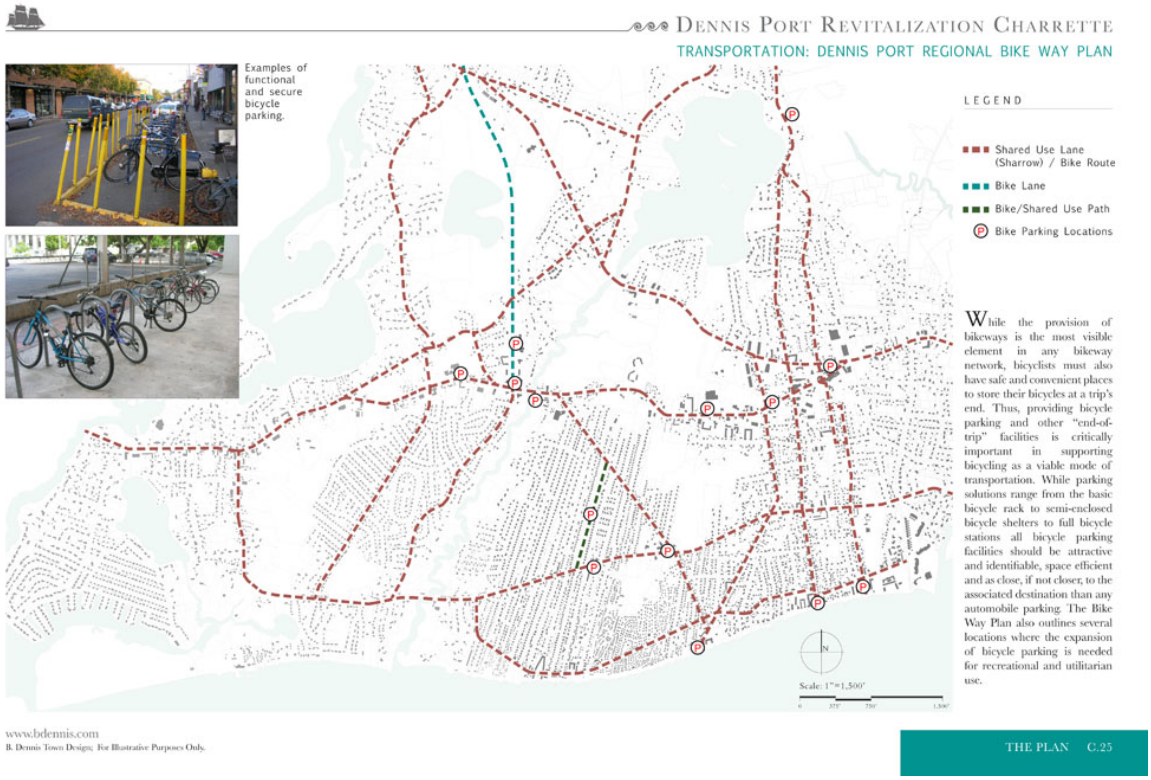


FIGURE 65. Dennis Port Regional Bike Way Plan

Orleans South Orleans to Orleans bike path

The Town of Orleans completed Feasibility study for the creation of a safe and continuous bike and pedestrian facility that connects South Orleans to Orleans Center.

https://www.town.orleans.ma.us/bike-and-pedestrian-committee/pages/south-orleans-to-orleans-trail-study

CCNS Integrated Bicycle Plan for Cape Cod

In 2010, Cape Cod National Seashore (CCNS) completed an Integrated Bicycle Plan ("Bicycle Feasibility Study") for Cape Cod, in partnership with the Cape Cod Commission, to identify improvements necessary to develop an integrated bicycle network throughout Cape Cod.

The study helps lay the groundwork to improve bicycling conditions on Cape Cod by developing a comprehensive and connected bicycle network. It includes a list of both infrastructure improvements and programmatic initiatives to promote bicycling, enhance bicycle access and improve safety Three primary classifications were developed to categorize the proposed projects; improvements to existing facilities; new facilities; and other initiatives. The study categorized the top recommended/selected projects according to the level of benefit and the barriers to implementation. All proposed projects should be viewed as valid and potential projects that may be pursued for funding. Coordination between Cape Cod National Seashore, the Cape Cod Commission, and/or the respective municipality is necessary to coordinate selection and implementation of individual projects. Some projects, particularly Cape Cod Trail extensions, have been formally programmed or planned since the study's completion. A consolidated list of all proposed projects is included in the full report are available at:

www.capecodcommission.org/bikeped

For each of the 47 recommended projects listed here, the study includes a basic project description, preliminary design concepts, a planning-level cost estimate, and recommendations for implementation. Some projects have more detailed cost estimates as a result of greater levels of detail relating to alignments, the type of facility, proposed configurations, and total distance. However, many projects are merely conceptual, identifying only a corridor or general route in need of improvement without specifying the project length, type or level of accommodation to be provided.

Project 5.2.1: Design Alternatives for Cape Cod Rail Trail Extension to Provincetown

Project 5.2.2: Wayfinding Signage and Pavement Markings on CCRT

Project 5.2.3: Intersection Improvements on Setucket Road Path

Project 5.2.4: Enhance Bicycling Conditions by Providing Paved Shoulders

Project 5.2.5: Identify Possible Sidewalks and Pedestrian Crossings near Brackett Road & Route 6Project 5.2.6: Western Extension of CCRT through Independence Park Project 5.2.7: Western Extension of CCRT to Hyannis Transportation Center Project 5.2.8: Connect Chatham Municipal Parking Lot and Old Colony Rail Trail and Old Queen Anne Road via Route 137 Improvements Project 5.2.9: Extension of the Old Colony Rail Trail from Volunteer Park to Schoolhouse Pond

Project 5.2.10: Connect Shining Sea Bikeway to Gifford Street

Project 5.2.12: Parking Improvements at Trailheads

Project 5.2.13: Connect Cape Cod Canal Bikeway to Hyannis Transportation Center

Project 5.2.14: Develop Plan for Intermodal Center in Falmouth

Project 5.2.15: Improve Bicycle Facilities on Tupper Road South of Route 6A

Project 5.2.16: Evaluate Use of Unpaved Roads for Bike Path Connections in Cape Cod National Seashore

Project 5.3.1: Evaluate Local Roads and Establish Bicycle Connections between Cape Cod National Seashore and Neighboring Communities

Project 5.3.2: Feasibility Study and Design of Bike Path along Route 6 from Herring Cove Parking Lot to Race Point Road

Project 5.3.3: Identify Possible Connections between the Cape Cod Rail Trail and Cape Cod National Seashore Trails

Project 5.3.4: Regional and local Pedestrian and Bikeway connectivity to Dennis Port

Project 5.3.5: Identify Regional Connections between Existing Paths and Locations with High Pedestrian Traffic

Project 5.3.6: Identify a "Shore Route" South of Route 28 from Woods Hole in Falmouth to Stage Harbor in Chatham

Project 5.3.7: Identify a "Bay Route" from the Cape Cod Canal in Bourne to Orleans

Project 5.3.8: Extend Shining Sea Bikeway through Bourne to Cape Cod Canal Bikeway

Project 5.3.9: Connect Harwich Port to Old Colony Rail Trail

Project 5.3.10 Designate Route 28 as a Bike Route and Improve Conditions

Project 5.3.11 Establish Bicycle & Pedestrian Connections between Orleans Villages

Project 5.3.12 Connect MacMillan Pier to Cape Cod National Seashore Bicycle Paths

Project 5.3.13 Connect Province Lands Bicycle Trail and Head of the Meadow Trail

Project 5.3.14 Connect Truro Village Center to Truro Destinations

Project 5.3.15: Connect Shawme-Crowell State Forest to the Cape Cod Canal Bikeway

Project 5.3.16: Connect Wellfleet Bay Wildlife Sanctuary to Cape Cod Rail Trail

Project 5.3.17: Identify Potential Bikeway Alignment through Sandwich Historic District

Project 5.3.18: Identify and Implement "OBHC Triangle" Route

Project 5.3.19 Improve Bicycling Conditions on Route 130 in Sandwich

Project 5.3.20: Improve Bicycling Conditions on Quaker Meeting House Road in Sandwich

Project 5.3.21: Establish a Bicycle & Pedestrian Connection from Fort Hill Area Trails to Governor Prence Road

Project 5.3.22: Define Loops and Connections to Develop a "Grand Cape Tour" Along the Cape Cod Rail Trail

CAPE COD COMMISSION

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix G: Congestion Management Plan

JULY 15, 2019

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Technical Appendix G: Congestion Management Plan

INTRODUCTION

Any urban area with a population over 200,000 is considered a Transportation Management Area, which subjects it to additional planning requirements under the U.S. DOT's Surface Transportation Program. The Cape Cod Region has been designated as a Transportation Management Area (TMA) following the 2000 Census. Under the federal statutes that define the MPO processes and requirements, these conditions make the establishment of a Congestion Management Program (CMP) a requirement of the Cape Cod Metropolitan Planning Organization (MPO).

Federal legislation that contains requirements for transportation plans, programs and projects includes the current legislation: *Moving Ahead for Progress in the 21st Century* (MAP-21) and the outgoing legislation: *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU) as well as the *Clean Air Act Amendments of 1990*.

Significant Legislative Elements

The CMP shall be developed, established, and implemented as part of the metropolitan planning process in accordance with 23 CFR 450.320(c). The statute includes the following requirements:

1. Methods to monitor and evaluate the performance of the multimodal transportation system, identify the causes of congestion, identify and evaluate alternative actions, provide information supporting the implementation of actions, and evaluate the efficiency and effectiveness of implemented actions.

2. Definition of parameters for measuring the extent of congestion and for supporting the evaluation of the effectiveness of congestion-reduction and mobility-enhancement strategies for the movement of people and goods. Since levels of acceptable system performance may vary among local communities, performance measures and service thresholds should be tailored to the specific needs of the area and established cooperatively by the State, affected MPO(s), and local officials in consultation with the operators of major modes of transportation in the coverage area.

3. Establishment of a program for data collection and system performance monitoring to define the extent and duration of congestion, to help determine the causes of

congestion, and to evaluate the efficiency and effectiveness of implemented actions. To the extent possible, existing data sources should be used, as well as appropriate application of the real-time system performance monitoring capabilities available through Intelligent Transportation Systems (ITS) technologies.

4. Identification and evaluation of the anticipated performance and expected benefits of appropriate traditional and nontraditional congestion management strategies that will contribute to the more efficient use of existing and future transportation systems based on the established performance measures. The following categories of strategies, or combinations of strategies, should be appropriately considered for each area:

 - Transportation demand management measures, including growth management and congestion pricing;
 - Traffic operational improvements;
 - Public transportation improvements;
 - ITS technologies; and,
 - Where necessary, additional system capacity.

5. Identification of an implementation schedule, implementation responsibilities, and possible funding sources for each strategy (or combination of strategies) proposed for implementation.

6. Implementation of a process for periodic assessment of the efficiency and effectiveness of implemented strategies, in terms of the area's established performance measures. The results of this evaluation shall be provided to decision makers to provide guidance on the selection of effective strategies for future implementation.

CONGESTION MANAGEMENT PLAN PROCESS

The CMP follows the federal guidance for an objectives-driven, performance-based approach consisting of the following eight actions:

- Develop Regional Objectives
- Define CMP Network
- Develop Multimodal Performance Measures
- Collect Data/Monitor System Performance
- Analyze Congestion Problems and Needs
- Identify and Assess Strategies
- Program and Implement Strategies

- Evaluate Strategy Effectiveness [1]

CONGESTION MANAGEMENT BACKGROUND

The Congestion Management Program is a collaboration of other ongoing regional efforts including the Regional Transportation Plan, Transportation Improvement Plan (TIP) and the Unified Planning Work Program (UPWP). The goals and objectives developed for the RTP are echoed in the CMP as well. As part of these on-going documents, congestion management is continually monitored, evaluated and measured within the regional transportation system. Our annual traffic count program monitors traffic volumes and travel patterns within the region, while our annual studies conducted as part of the UPWP evaluate existing congestion roadway links and recommend alternative strategies to mitigate regional congestion. As part of these on-going documents, congestion management is continually monitored, evaluated and measured within the regional transportation system.

The CMP is also intended to be a planning tool to help reduce mobile source emissions and improve regional air quality. To support this planning tool, monitoring of transportation system performance is an ongoing activity for the Cape Cod region.

"Congestion" is defined as travel time or delay in excess of that normally incurred under light or free-flow travel conditions. There are two primary types identified for congestion and a successful congestion management program should address both types of congestion. The two types of congestion are:

1. Recurring congestion that tends to be concentrated into short time periods, such as "rush hours" and is caused from excessive traffic volumes resulting in reduced speed and flow rate within the system, and
2. Non-recurring congestion caused from unforeseen incidents (road accidents, weather events, construction work zones) which affect the driver behavior to a considerable extent.

With regard to the Cape Cod region, there are several factors that attribute to recurring congestion:

- Natural geometry of the region as it is surrounded by water and uniquely shaped with only two regional roadways.
- Vehicular access to the region is limited by two antiquated bridge structures across the Cape Cod Canal.
- Limited presence of multi-modal options connecting Cape Cod to the urban areas of Massachusetts (i.e. commuter rail and ferry routes).

[1] Congestion Management Process: A Guidebook. Federal Highway Administration. April 2011. Report No. FHWA_HEP_11_011.

- The Cape Cod region is home to an established community of secondary summer homes and is a vacation destination, which greatly increases traffic volumes and congestion periods.
- Access to the highly-seasonal islands of Nantucket and Martha's Vineyard is provided from Cape Cod via ferry routes and airline connections.

However, the Cape Cod region also has some strengths that present unique opportunities for the management of congestion:

- The region has an established and active public transit authority (Cape Cod Regional Transit Authority (CCRTA)), consisting of seven (7) fixed route transit bus routes, dial-a-ride (DART) or paratransit service, seasonal trolley service and the Hyannis Transportation Center.
- A seasonal commuter passenger rail service, known as the CapeFlyer, was established in 2013 in collaboration with MassDOT, the Massachusetts Bay Transportation Authority (MBTA) and the CCRTA, and provides passenger rail service between Boston and Cape Cod. The service runs on the weekends, beginning Friday evenings between Memorial Day weekend and Labor Day weekend.
- The region has an established network of multi-use paths and rail trails, including the Cape Cod Rail Trail, Cape Cod Canal Path and the Shining Sea Bikeway with several expansion routes planned for the future. In addition, the region's municipalities have a growing interest in bicycle accommodation for on road facilities.

Critical to the concept of congestion management is the understanding that the acceptable system performance may vary by type of transportation modes and systems, geographic location, season, and/or time of day. The philosophy of the Cape Cod RTP and CMP is not to build to accommodate the peak season demand, but to provide adequate transportation for year-round travel and to provide and promote alternatives to the automobile. This philosophy is different from the majority of the regions in Massachusetts and across the nation. The philosophy of the CMP places much more emphasis on management of traffic and providing alternatives to the automobile for transportation rather than accommodating traffic demand.

CONGESTION MANAGEMENT NETWORK

The Congestion Management Network for the Cape Cod region was developed based on its unique attributes of its landscape and seasonal nature. The Cape Cod region includes 15 towns with an average population of 200,000 year-round residents, which spikes to approximately 500,000 during the summer peak season. Due to the unique geography of the Cape Cod landscape, the region is mainly served by two main linear corridors, Route 6 and Route 28, that provide a regional connection to all 15 towns. The network for the congestion management focuses on these two

main arterial roadways which handle the majority of the regional vehicular trips, experience reoccurring congestion and have a known crash history. Both corridors currently provide transit service and have the greatest potential for an improved multi-modal environment. As shown in Figure 1, Route 28 and Route 6 are the two main arteries that serve the Cape Cod region and coincide with other multi-modal facilities in the region.

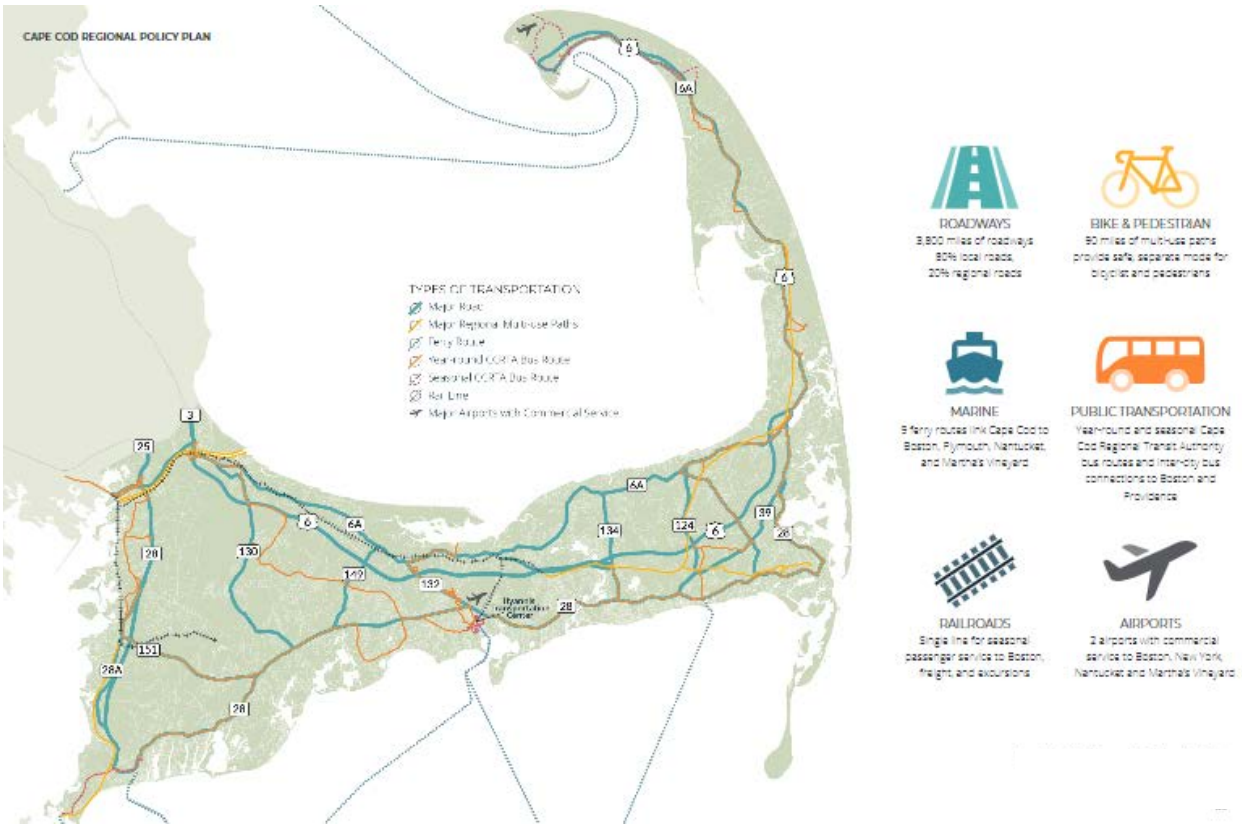


FIGURE 1. Cape Cod Regional Roadways

Route 6

On Cape Cod, Route 6 is the major transportation corridor, particularly for those traveling long distances. From where it enters Barnstable County in Buzzards Bay until its end in Provincetown, it provides a primarily limited-access high-speed means of traveling along the spine of the Cape for commercial traffic and is under the jurisdiction of MassDOT. The Route 6 corridor in the Outer Cape does not have limited access and consists of a four-lane cross section with commercial curb cuts. This portion of Route 6 also contains segments of the Claire Saltonstall Bikeway, or State Bicycle Route 1, but with limited pedestrian and bicycle accommodations. The CCRTA runs transit service on Route 6 on the Outer Cape via the Flex Route from Harwich to Provincetown. Within the Mid-Cape, Route 6 carries a summer ADT count of approximately 65,000 and within the Outer Cape, Route 6 carries a summer ADT of approximately 24,000. The posted speed limit on Route 6 is

55 miles per hour (mph) within the four-lane divided highway section from Sagamore Bridge to Exit 9, 50 mph on the two-lane divided highway section from Exit 9 to the Orleans Rotary and 40 mph on the Outer Cape portion.

During peak travel periods in the summer it is not unusual for westbound traffic to be stopped for several miles east of the Sagamore Bridge or at various bottleneck points. The two most notable bottlenecks on Route 6 are at the Sagamore Bridge and the section of Route 6 in Dennis where is changes from a four-lane cross section to a two-lane cross section. A third bottleneck is on Route 6 in Wellfleet where the cross section again changes from four lanes to two lanes. Recently, MassDOT has installed "Go Time' signs on Route 6, providing real-time traffic travel times to major points, such as Hyannis, Provincetown and the Sagamore Bridge.

Route 28

Route 28 runs for almost sixty-five miles after crossing the Cape Cod Canal and passing through villages adjacent to Buzzards Bay/Nantucket Sound/the Atlantic Ocean from Bourne to Orleans Center. Route 28 is a regional roadway, but it does not provide direct inter-regional travel options in most cases. The cross section of Route 28 varies greatly throughout the Cape. However, there are three primary sections to Route 28, which are identifiable by their roadways characteristics, and all three sections are under the jurisdiction of MassDOT. Most notably is a section within the towns of Bourne and Falmouth that is classified as a limited-access highway with high travel speeds and carries a summer ADT of approximately 38,000. MassDOT has recently installed Go Time' signs on this portion of Route 28, providing real-time traffic travel times to major points, such as Woods Hole and the Bourne Bridge. The urban major arterial section of Route 28 which spans from Falmouth to Orleans has varying travel speeds with varying levels of pedestrian and bicycle accommodations. Route 28 within the Mid-Cape carries a summer ADT of approximately 31,000. The CCRTA runs two transit bus lines, the Sealine and the H2O line along Route 28 from Falmouth to Orleans.

Traffic flow along the corridor is generally heavy during the summer, with gridlock occurring in many locations. However, the level of traffic varies greatly along the corridor. Much of the Route 28 corridor is congested during summer peak hours. Some sections, such as in Hyannis and Falmouth, can experience congestion year-round. One of the most notable regional bottleneck areas on Route 28 is at the Bourne Bridge and the Bourne Rotary.

REGIONAL GOALS AND OBJECTIVES

The congestion management goals and objectives are in concert with the goals developed as part of the Cape Cod Region RTP. Specially, the following three goals are the focus for the CMP:

Goal 1: Improve Safety

- Objective: Reduce crashes on Route 28 and Route 6 for all modes of travel.

Goal 2: Increase Multi-modal Accommodations

- Objective: Increase multi-modal options for non-motorists along Route 28 and Route 6 to reduce single occupancy vehicles and reduce congestion.

Goal 3: Reduce Congestion

- Objective: Aim to reduce congestion at specific bottleneck intersections on Route 28 and Route 6 on Cape Cod.

MULTI-MODAL PERFORMANCE MEASURES

The following multi-modal performance measures have been identified as part of the congestion management process and mirror the vision that has been developed for the RTP.

Traffic Volumes

Traffic volumes are at the core of the data collection process, especially for a seasonal area such as Cape Cod. Traffic volumes are collected during the summer peak season on area roadways and intersections and reveal our most heavily traveled corridors. Traffic volume data reveals peak days and time periods, as well as where congestion points may occur. Many of the other safety performance measures listed below are dependent on traffic volumes (i.e. crash rates, volume to capacity ratio).

Volume to Capacity (v/c) Ratios

This measurement is a ratio of the traffic volume of a roadway to its capacity. Capacity is defined as the hourly rate at which vehicles can reasonably be expected to proceed through an intersection under normal conditions. A v/c ratio at or above 1.0 is an indicator that the intersection operates at or over its intended capacity.

Vehicle Occupancy

Vehicle occupancy is a measurement of how many people are riding in one vehicle at a time at a certain location. Ride share and carpool services have grown in recent years which reduces single occupant vehicles on roadways and lessens congestion.

Number of Crashes (all modes)

The total number of crashes directly relate to problem areas with safety issues based on the frequency. Crash data for the Cape Cod region is inventoried on an annual basis to identify the worst intersections in our region based on several different factors, including the total number.

Transit Ridership

The number of transit riders is regularly collected by transit agencies and indicate how well the transit route is performing from a location and service perspective.

Park n Ride Lot Usage

Park n Ride lots provide people with the opportunity to carpool or take alternative transportation, such as bus service or bicycling. Parking counts at the three (3) Park n Ride lots on Cape Cod are performed regularly throughout the course of a year. Park n Rides are used frequently by area residents to commute to Boston and/or Logan Airport.

Walkability Rating

Walkability rating refers to the sidewalk condition, connectivity and comfortability for the pedestrian. Sidewalks along the Route 6 and Route 28 corridors will be rated based on these parameters.

Transportation Demand Management

Transportation Demand Management (TDM) measures assist in reducing congestion on areas roadways by encouraging alternate modes of travel, such as carpooling, walking, bicycling, and transit service. Employers may also provide benefits to help reduce off-site vehicle trips throughout the workday. TDM measures are encouraged for private development projects on Cape Cod through Development of Regional Impact (DRI) permitting through the Cape Cod Commission.

DATA COLLECTION AND SYSTEM PERFORMANCE MONITORING

A multitude of data collection processes are performed annually for the Cape Cod region and will be analyzed as part of the CMP process. The data collected in the monitoring process will be continually compared to the measures developed to define congestion. The comparison will be used to identify congested areas and trigger an investigation into the nature of the demand problems. These demand issues are expected to include regional traffic flows, local traffic generators, geometric problems, and access problems. The annual traffic studies pursued by the Cape Cod MPO staff will be guided by the CMP and target areas for further study.

The following programs are currently underway and will continue an annual basis. These existing programs are anticipated to provide the bulk of the data for the CMP.

Traffic Volumes

The Cape Cod Commission, funded by MassDOT, has been collecting traffic data since 1984. This data includes traffic volumes on key roadway segments around Cape Cod and turning movement counts collected at key intersections. The traffic counting program is established in a systematic way to provide historic data at key locations as resources allow. Counts are also made to support traffic studies and, in areas of concern, to identify congested situations. Development of the annual traffic counting program is done in consultation with the Cape Cod Joint Transportation Committee. The principal product of this effort is the annual traffic counting report.

The traffic counting program will continue to provide data for the CMP. Examination of changes in traffic volume will be done and trends will guide further investigation of traffic problems as part of the CMP. As the traffic counting program is defined each spring, counts to investigate suspected or identified congestion areas will be included. In addition, counts will be programmed to monitor congestion in areas where CMP initiatives are in place.

Measures of seasonal as well as year-round congestion need to be developed through the traffic counting program in addition to monitoring of the travel times as well as transit usage. Development of relative conditions and trends between seasonal demand and winter demand periods must also occur to help determine appropriate strategies for addressing congestion

Recurring congestion often occurs during "rush hours" in the off-season, however, during the peak summer season volumes are found to generally be consistently high throughout the day on Route 28 and Route 6, as shown in Figure 2.

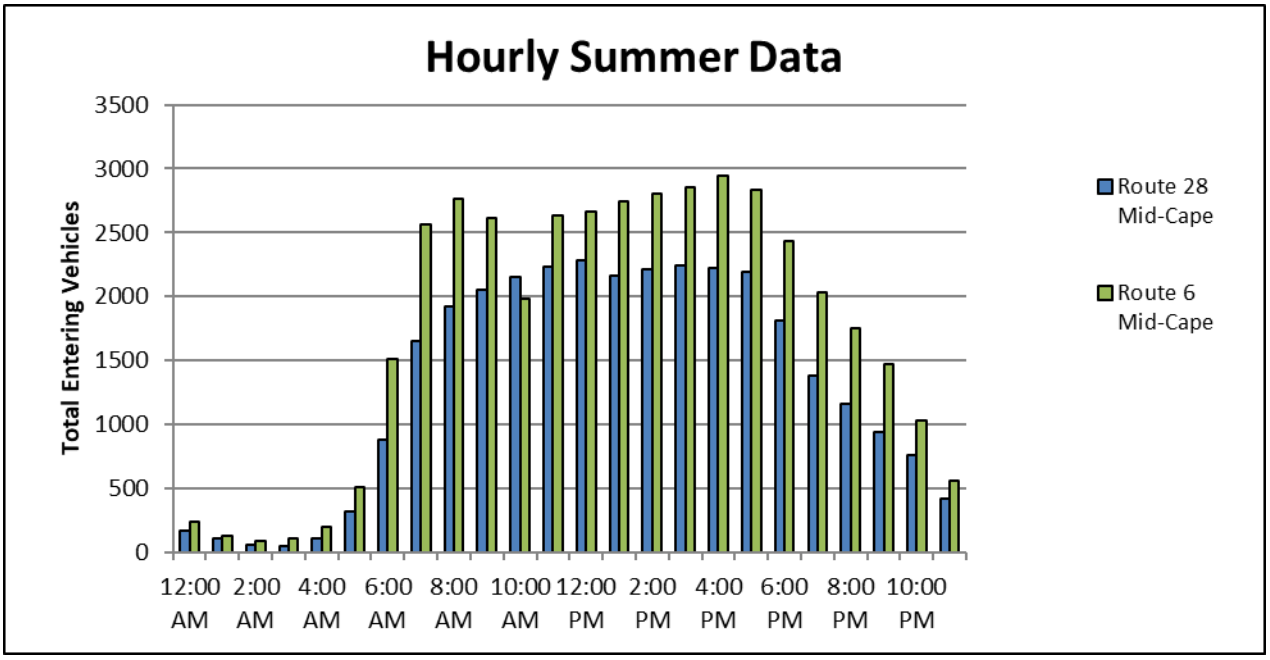


FIGURE 2. Route 6 and Route 28 Hourly summer volume data

In addition, during the summer peak season there are the well-known weekend congestion periods on Route 6 and at the Cape Cod Canal bridges, most notably on Friday afternoons and Saturday mornings for visitors arriving to the Cape and on Sundays with visitors leaving the Cape. Additionally, most weekly rental homes turn over on Saturdays, so this change-over period also adds to the congestion period. Unfortunately, the traffic woes and congestion periods have become the norm to most roadway users and motorists plan accordingly around the congestion.

The traffic counting program is the base data source for developing trends in traffic growth and potential for growth in traffic congestion. The following information is from the *Cape Cod 2018 Traffic Counting Report* to be published in early 2019. The full report and access to mapped traffic counts are available at:

www.capecodcommission.org/counts

The Massachusetts Department of Transportation (MassDOT) maintains seven permanent counter locations on or near Cape Cod on some of the more heavily trafficked roads. The following table displays those locations with their ten-year growth, ten-year average annual growth, and one-year growth rate (2017-2018).

TABLE 1. Growth Rates - Permanent Counting Stations and Bridge Crossings

PERMANENT TRAFFIC COUNTING STATION	10 YEAR TOTAL GROWTH	10 YEAR AVERAGE ANNUAL GROWTH RATE	ONE YEAR GROWTH RATE 2017-2018
#15: Rt 6 E of Rt 149 (Ex. 5)	-2.25	-0.23	-6.76
#20: Rt 3 N of Bourne TL	6.31	0.61	n/a
#707: Bourne Bridge	-0.55	-0.06	3.56
#708: Sagamore Bridge	8.56	0.82	-1.66
#709: Rt 28 E of Higgins Crowell	-6.85	-0.71	n/a
#7322: Rt 28 S of Otis Rotary	0.40	0.04	n/a
#7351: Rt 28 W of Old Post Rd	-3.70	-0.38	n/a

It is important to note that growth is based on summer traffic volumes, not off-season values.

TABLE 2. Cape Cod Summer Traffic Growth (2008-2018)

REGION*	NUMBER OF COMPARISONS**	10-YEAR TOTAL GROWTH (%)	10-YEAR ANNUAL AVERAGE GROWTH RATE (%)	ONE-YEAR GROWTH RATE 2017-2018 (%)
Upper Cape	168	5.59	0.54	3.85
Mid-Cape	152	2.70	0.26	1.26
Lower Cape	120	3.65	0.35	1.84
Outer Cape	81	8.80	0.84	4.66
All Roads	**518**	**4.54**	**0.44**	**2.92**

*Upper = Bourne, Sandwich, Falmouth, Mashpee | Mid = Barnstable, Yarmouth, Dennis
Lower = Harwich, Chatham, Brewster, Orleans | Outer = Eastham, Wellfleet, Truro, Provincetown

** Corresponds to ten-year analysis only

The Cape Cod Center for Sustainability traffic congestion indicator is based on average annual daily bridge crossings over the Sagamore and Bourne bridges. While there are many possible indicators of congestion, bridge traffic is easy to measure, provides data on long-term trends, and has significant implications for traffic Cape wide, as many who bring their cars across the bridge use them for virtually all local or regional trips.

Bridge crossings have been rising steadily for most of the past 32 years. Traffic data have been collected at permanent count stations at both bridges since 1972. Carrying roughly twice as many vehicles today as in 1972, the story of traffic over the bridges is the story of traffic on Cape Cod.

As shown in the figure below, both summer and annual average daily traffic (ADT) over the bridges showed an overall upward trend from the early 1970's through the early 2000's, reaching a maximum in 2002. Traffic volumes, on average, dropped from 2002 to 2007 before trending slightly upward in recent years. This figure has not been updated since 2012 because traffic counters have not been able to supply consistent data throughout the year.

Seasonal traffic trends over the bridges have also changed considerably over the years. Since 1972, traffic has tended to be more spread out over 12 months as opposed to concentrated during the summer months. As shown in the following figure this trend, along with the overall increase in traffic, has resulted in 2011 traffic volumes throughout almost the entire year in excess of 1972 traffic volumes in the summer. There were a variety of ten months of available data for 2018, these counts are displayed below to show the traffic volume trends along with 2011 for comparison.

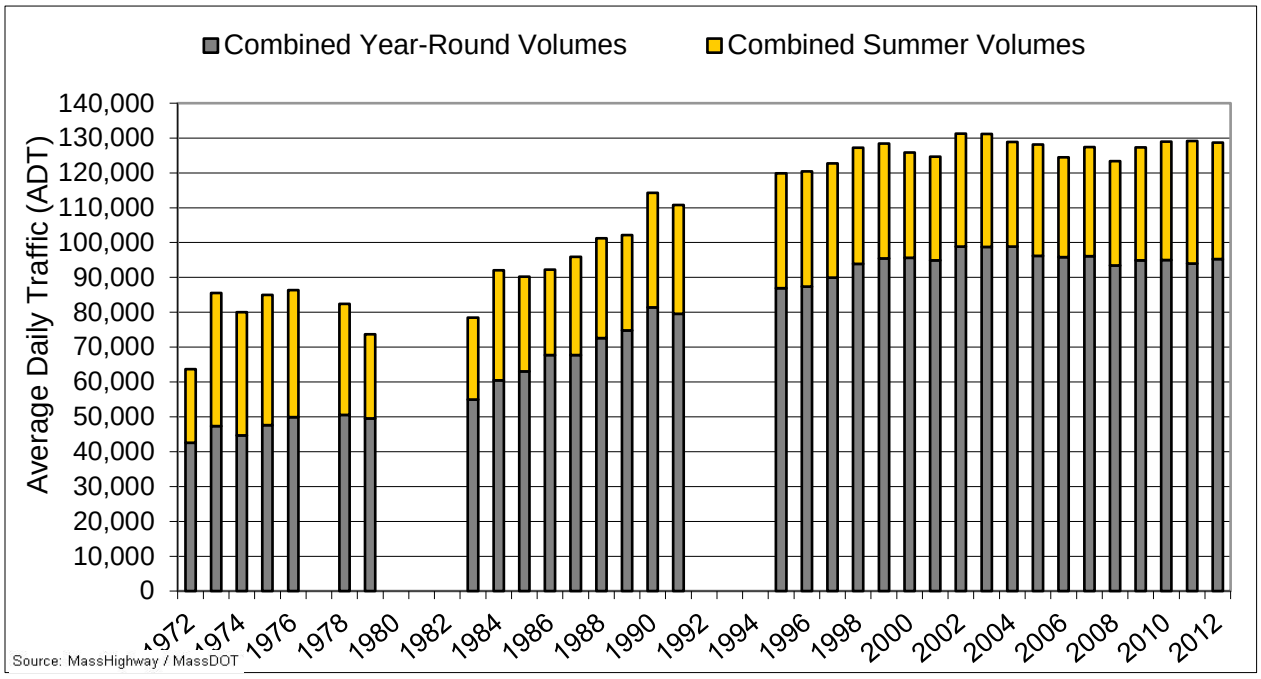


FIGURE 3. Combined Average Daily Traffic over Bourne and Sagamore Bridges

The following figure compares the total monthly vehicle traffic in both directions on the Bourne and Sagamore Bridges in 2018. The Sagamore Bridge was consistently crossed more each month. In the summer months, both bridges received increased traffic and the difference in usage between the bridges increased. Incomplete data for northbound traffic on the Bourne Bridge occurred in March while incomplete data for the northbound traffic on the Sagamore Bridge occurred in July.

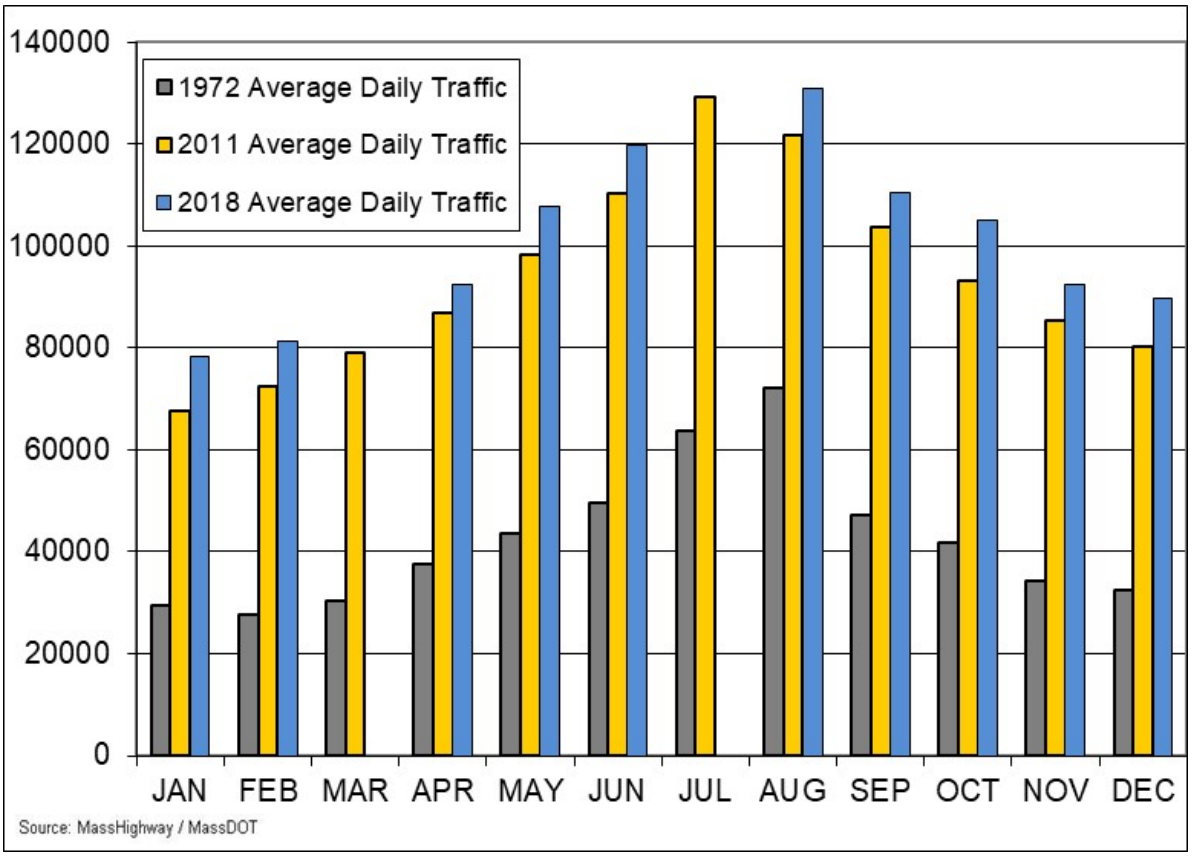


FIGURE 4. Historic Monthly ADT Changes at the Cape Cod Canal Bridges

The different usage of the two bridges shows a similar trend when examining directional volumes, as shown by the following figure. More vehicles cross the Sagamore Bridge than the Bourne Bridge each month, except in April 2018 where a major construction project was performed on the Sagamore Bridge and reduced travel lanes to one per direction. The access to and from the Canal roadways to the bridges varies in each crossing direction.

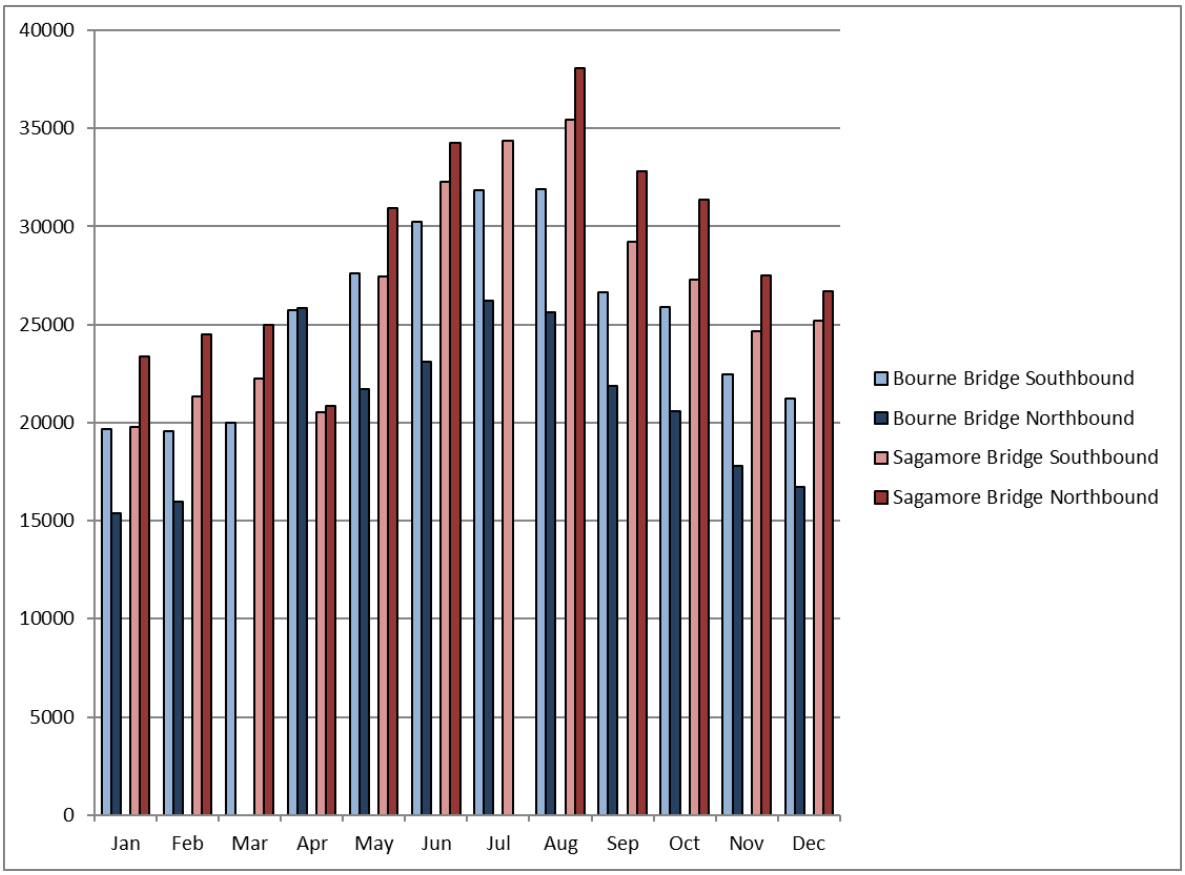


FIGURE 5. 2018 Monthly Directional Average Daily Traffic at the Cape Cod Canal Bridges

A MassDOT remote counting station located on Route 28 in the town of Barnstable shows useful insight into traffic trends on Route 28 during the summer and in the off-season. The figure below shows the hourly volumes during a typical summer day and an off-season day at the location of Route 28 west of Putnam Avenue. The data shows that traffic volumes on Route 28 do not have a distinct peak hour, as you would typically see on a typical arterial roadway during commuter peak hours. Instead, traffic peaks in the morning and traffic volumes remain steady throughout the day until the typical evening peak period.

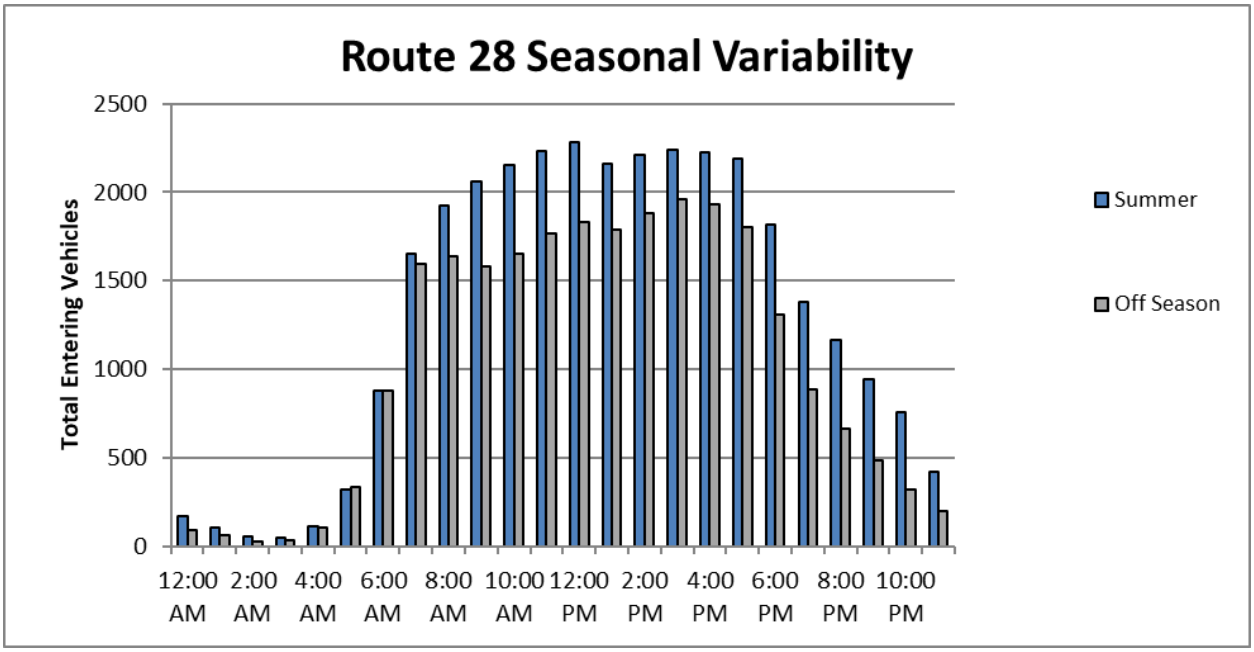


FIGURE 6. Hourly Summer Data at MassDOT Permanent Counting Station on Route 28

The graph below shows the monthly volumes that were counted by Cape Cod Commission permanent counting stations in 2018. The intersection at Route 28 and Lumbert Mill Road in Barnstable showed the highest volumes of the three locations in each month. The location in Harwich shows traffic volumes closer to the amount shown Route 28 and Lumbert Mill Road in the July and August. The intersection in Harwich, Route 124 at Queen Anne Road showed a larger increase in volume during the summer months. The intersection at Route 28 and Lumbert Mill Road showed more consistent volumes year-round.

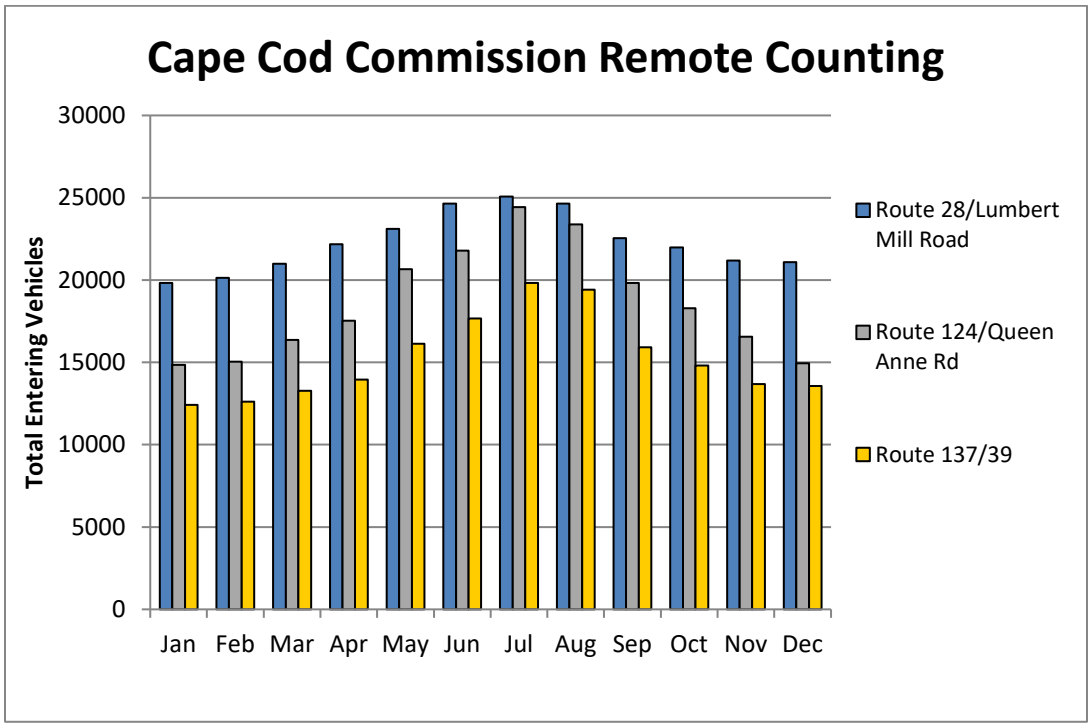


FIGURE 7. Monthly Traffic Volumes Recorded at Cape Cod Commission Permanent Counting Stations

Volume to Capacity Ratios

The thresholds for the Level of Service (LOS) and volume to capacity ratios are shown in the following table below.

TABLE 3. Volume to Capacity Thresholds

SYMBOL	V/C RATIO THRESHOLD	LEVEL OF SERVICE (LOS)
●	0.8	C or Better
●	0.9	D
●	1.0	E
●	>1.0	F

LOS and v/c calculations were performed as part of the CMP for locations on Route 28 and Route 6 that were recently counted during the 2018 summer peak season. The traffic volumes used represent a consistent summer weekday 4-5 p.m. peak hour on a roadway section.

Roadway LOS only shows part of the congestion picture. In many cases traffic congestion bottlenecks occur at intersections. Intersection analyses are more complicated and performed on a case-by-case basis. Such locations are often identified through public input and consultations with local traffic officials such as CCJTC members.

The following table summarizes congested roadway locations along Route 28 and Route 6 that are rated LOS E/F.

TABLE 4. 2018 Congested Locations on Route 28 and Route 6

TOWN	ROUTE	ORIENT	ROAD	LOS	VC_Ratio
Bourne	Rt 6 Scenic	under	Bourne Bridge	E/F	0.89
Bourne	Rt 6	@	Bour/Sand TL	E/F	1.14
Sandwich	Rt 6	Btwn	Exits 2 & 3	E/F	1.00
Sandwich	Rt 6	Btwn	Exits 3&4	E/F	0.92
Sandwich	Rt 6	@	Sand/Barn TL	E/F	0.89
Falmouth	Rt 28	S of	Braeside Rd	E/F	1.32
Falmouth	Rt 28	W of	Davisville Rd	E/F	1.15
Falmouth	Rt 28	@	Falm/Mash TL	E/F	1.16
Falmouth	Rt 28	W of	Fresh Pond Rd	E/F	1.51
Falmouth	Rt 28	N of	Jones Rd (W end)	E/F	1.51
Falmouth	Rt 28	E of	King St	E/F	1.12
Falmouth	Rt 28	N of	Lakeview Av	E/F	1.02
Falmouth	Rt 28	E of	Maravista Ext	E/F	1.10
Falmouth	Rt 28	W of	Post Office Rd	E/F	1.20
Falmouth	Rt 28	E of	Sandwich Rd	E/F	0.95
Falmouth	Rt 28	W of	Shore Rd	E/F	0.79
Falmouth	Rt 28	E of	Spring Bars Rd	E/F	1.08
Mashpee	Rt 28	E of	Donnas Ln	E/F	1.48
Mashpee	Rt 28	E of	Industrial Way	E/F	1.32
Mashpee	Rt 28	@	Mash/Barn TL	E/F	1.56
Mashpee	Rt 28	E of	Mashpee Rotary	E/F	1.63
Mashpee	Rt 28	W of	Mashpee Rotary	E/F	1.16
Mashpee	Rt 28	W of	Orchard Rd & Ashers Path	E/F	1.71
Barnstable	Rt 28	E of	Airport Rotary	E/F	1.80
Barnstable	Rt 28	W of	Anchor Ln	E/F	1.47
Barnstable	Rt 28	@	Barn/Yarm TL	E/F	1.22
Barnstable	Rt 28	E of	Barnstable Intermediate E Entrance	E/F	1.34

TOWN	ROUTE	ORIENT	ROAD	LOS	VC_Ratio
Barnstable	Rt 28	W of	Barnstable Intermediate E Entrance	E/F	1.27
Barnstable	Rt 28	W of	Bearses Way	E/F	1.33
Barnstable	Rt 28	E of	Bearses Way	E/F	0.90
Barnstable	Rt 28	W of	Lumbert Mill Rd	E/F	1.40
Barnstable	Rt 28	W of	Old Stage Rd	E/F	2.02
Barnstable	Rt 28	W of	Pitchers Way	E/F	1.35
Barnstable	Rt 28	E of	Putnam Av	E/F	2.36
Barnstable	Rt 28	W of	Putnam Av	E/F	1.68
Barnstable	Rt 28	W of	Rt 132	E/F	1.19
Barnstable	Rt 28	W of	Santuit-Newtown Rd	E/F	1.44
Barnstable	Rt 28	W of	West Main St	E/F	1.63
Barnstable	Rt 28	W of	Yarmouth Rd	E/F	1.91
Barnstable	Rt 6	@	Barn/Yarm TL	E/F	0.84
Yarmouth	Rt 28	E of	Baxter Ave	E/F	1.85
Yarmouth	Rt 28	E of	East Main St (Hyannis)	E/F	2.09
Yarmouth	Rt 28	W of	Forest Rd	E/F	1.01
Yarmouth	Rt 28	W of	Long Pond Dr	E/F	0.99
Yarmouth	Rt 28	E of	North Main St	E/F	1.10
Yarmouth	Rt 28	W of	Old Main St (S Yarmouth)	E/F	1.19
Yarmouth	Rt 28	E of	Seaview Av	E/F	1.20
Yarmouth	Rt 28	E of	South Sea Av	E/F	1.10
Yarmouth	Rt 28	W of	Town Brook Rd	E/F	1.59
Yarmouth	Rt 28	W of	West Yarmouth Rd	E/F	1.28
Yarmouth	Rt 28	E of	Wood Rd	E/F	1.20
Yarmouth	Rt 6	Btwn	Exits 7 & 8	E/F	0.92
Yarmouth	Rt 6	@	Yarm/Denn TL	E/F	0.97
Dennis	Rt 28	@	Denn/Harw TL	E/F	0.77
Dennis	Rt 28	E of	School St	E/F	0.97
Dennis	Rt 28	W of	School St	E/F	1.15
Dennis	Rt 28	W of	Sea St	E/F	0.78

TOWN	ROUTE	ORIENT	ROAD	LOS	VC_Ratio
Dennis	Rt 28	W of	Woodbine Dr	E/F	1.03
Dennis	Rt 6	@	Denn/Harw TL	E/F	1.20
Harwich	Rt 28	W of	Bank St	E/F	0.87
Harwich	Rt 28	E of	Belmont Rd	E/F	0.90
Harwich	Rt 28	W of	Belmont Rd	E/F	0.77
Harwich	Rt 28	@	Harw/Chat TL (N end)	E/F	0.78
Harwich	Rt 28	@	Harw/Chat TL (W end)	E/F	0.74
Harwich	Rt 28	E of	Sisson Rd (Rt 39)	E/F	0.73
Harwich	Rt 28	W of	Sisson Rd (Rt 39)	E/F	0.99
Harwich	Rt 6	Btwn	Exits 10 & 11	E/F	1.17
Brewster	Rt 6	@	Brew/Orle TL	E/F	0.84
Chatham	Rt 28	E of	Barn Hill Rd	E/F	1.15
Chatham	Rt 28	N of	Crowell Rd (N end)	E/F	0.81
Chatham	Rt 28	W of	Crowell Rd (S end)	E/F	1.21
Chatham	Rt 28	E of	Crowell Rd (S end)	E/F	0.85
Chatham	Rt 28	E of	Heritage Ln	E/F	1.23
Chatham	Rt 28	E of	Rt 137	E/F	1.03
Chatham	Rt 28	W of	Stage Harbor Rd	E/F	0.82
Chatham	Rt 28	N of	Stoney Hill Rd	E/F	0.67
Orleans	Rt 28	S of	Main St	E/F	0.79
Orleans	Rt 28	N of	Rt 39	E/F	1.06
Orleans	Rt 28	S of	Rt 6A	E/F	0.88
Orleans	Rt 6	W of	Orle/East Rotary	E/F	0.70
Eastham	Rt 6	@	East/Well TL	E/F	1.51
Eastham	Rt 6	S of	Hemenway Rd	E/F	0.83
Eastham	Rt 6	N of	Orle/East Rot	E/F	0.89
Wellfleet	Rt 6	S of	Lecount Hollow Rd	E/F	1.61
Wellfleet	Rt 6	S of	Long Pond Rd	E/F	1.37
Wellfleet	Rt 6	S of	Main St	E/F	1.54
Wellfleet	Rt 6	N of	Springbrook Rd	E/F	1.22

TOWN	ROUTE	ORIENT	ROAD	LOS	VC_Ratio
Wellfleet	Rt 6	@	Well/Trur TL	E/F	1.13
Wellfleet	Rt 6	N of	Wellfleet Drive In	E/F	1.55
Truro	Rt 6	S of	Castle Rd	E/F	1.20
Truro	Rt 6	S of	Rt 6A	E/F	1.37
Truro	Rt 6	@	Trur/Prov TL	E/F	0.59
Truro	Rt 6	N of	Truro Central School	E/F	1.37
Truro	Rt 6	S of	Union Field Rd	E/F	1.13

As seen in the above summary table, the majority of Route 28 in the Upper Cape and Mid-Cape sections (Falmouth to Dennis) has a v/c ratio over 1.0 and indicates a congested corridor in the summer. Route 6 is also identified as having a v/c ratio of over 1.0 in the area near the Cape Cod Canal bridges in the towns of Bourne and Sandwich and also in the Outer Cape areas of Wellfleet and Truro, where Route 6 is a two-lane undivided roadway.

In addition, MassDOT has recently completed released a draft report of their Cape Cod Canal Transportation Study. The study analyzed the major intersections and interchanges in the vicinity of the Cape Cod Canal and the Sagamore and Bourne Bridges, which are sources of reoccurring congestion on a year-round basis. As part of the MassDOT study, a set of preferred alternatives have been identified to significantly reduce congestion and improve the reliability across the Canal. The following locations have been identified as bottleneck locations for improvement:

- Belmont Circle
- Bourne Rotary Interchange
- Route 6 Westbound at Exit 1C
- Bourne and Sagamore Bridge Approaches

Vehicle Occupancy

Vehicle occupancy counts are conducted at key locations in the CMP. The following table presents data from recent occupancy counts performed in 2016-2018 along Route 6 and Route 28. A more robust occupancy counting program is planned in the future to build out this dataset.

TABLE 5. Vehicle Occupancy Data

TOWN	LOCATION	DATE	RIGHT LANE SAMPLE VOLUME	RIGHT LANE OCCUPANCY	LEFT LANE SAMPLE VOLUME	LEFT LANE OCCUPANCY
Bourne	Rt 6 SB S of Sagamore Br	06/01/2016	696	1.29	615	1.26
Bourne	Rt 6 NB S of Sagamore Br	06/07/2017	521	1.37	476	1.36
Bourne	Rt 28 SB N of Bourne Br	06/01/2016	327	1.34	324	1.24
Bourne	Rt 6 NB S of Sagamore Br	06/01/2016	1309	1.32	1104	1.26
Bourne	Rt 28 NB N of Bourne Br	06/01/2017	790	1.31	586	1.16
Bourne	Rt 6 SB S of Sagamore Br	08/24/2016	333	1.54	328	1.49
Bourne	Rt 28 SB N of Bourne Br	08/25/2016	636	1.62	602	1.49
Bourne	Rt 6 NB S of Sagamore Br	08/25/2016	418	1.42	415	1.36
Bourne	Rt 28 NB N of Bourne Br	08/25/2016	1090	1.52	640	1.40
Yarmouth	Rt 6 EB @ Rest Area	06/06/2017	663	1.39	363	1.25
Yarmouth	Rt 6 WB @ Rest Area (Bass River)	06/06/2017	551	1.29	710	1.28
Bourne	Rt 6 SB S of Sagamore Br	06/07/2017	721	1.25	637	1.27
Bourne	Rt 28 NB N of Bourne Br	08/25/2017	534	1.51	168	1.35
Bourne	Rt 6 SB S of Sagamore Br	08/25/2017	298	1.37	255	1.28
Bourne	Rt 6 NB S of Sagamore Br	08/25/2017	575	1.53	272	1.51
Bourne	Rt 28 SB N of Bourne Br	08/25/2017	218	1.17	306	1.21

TOWN	LOCATION	DATE	RIGHT LANE SAMPLE VOLUME	RIGHT LANE OCCUPANCY	LEFT LANE SAMPLE VOLUME	LEFT LANE OCCUPANCY
Mashpee	Rt 28 WB W of Steeple St	10/11/2017	237	1.27	NA	NA
Mashpee	Rt 28 EB W of Steeple St	10/11/2017	440	1.27	NA	NA
Yarmouth	Rt 6 EB @ Rest Area	06/01/2018	350	1.42	271	1.49
Barnstable	Rt 28 EB E of Old Stage Rd	07/26/2018	453	1.43	363	1.47

Number of crashes (all modes)

The Cape Cod Commission has recently identified the region's Top 50 high crash locations. The data used for this endeavor, including crashes that occurred from 2012-2016, are the most recent available from the Massachusetts Department and Transportation (MassDOT) and local police departments from Barnstable County. Through the analysis of our data, a series of top crash location lists have been generated, including crash rank, crash rate and Equivalent Property Damage Only (EPDO). A future task will be to identify the top pedestrian and bicycle crash areas. The following table summarizes the top crash locations by rank that are located on either Route 28 or Route 6 within Barnstable County.

TABLE 6. Top Crash Locations (2012-2016)

Rank Crashes	Town	Location	Crash Count	EPDO	Crash Rate	EPDO Rate
2	Barnstable	Route 28 (Falmouth Road) and Bearses Way	153	285	3.2	5.9
3	Barnstable	Route 28 (Iyannough Road) at Yarmouth Road	136	260	3.0	5.7
4	Yarmouth	Route 28 at Old Main Street/North Main Street	106	212	3.7	7.5
6	Falmouth	Route 28 (East Falmouth Highway) at Old Meeting House Road/Davisville Road	104	216	3.7	7.6
11	Falmouth	Route 28 (Falmouth Road) at Trotting Park Road	66	106	3.1	4.9
12	Barnstable	Route 28 (Falmouth Road) at Osterville-West Barnstable Road	64	136	1.7	3.6
14	Barnstable	Route 28 (Falmouth Road) at Old Stage Road/Camp Opoechee Road	61	141	1.2	2.8
15	Barnstable	Route 28 (Falmouth Road) at Putnam Avenue	58	110	1.7	3.2
16	Barnstable	Route 28 (Falmouth Road) at Cotuit Road/Prince Avenue	58	134	1.3	3.1
18	Barnstable	Route 28 (Falmouth Road) and Pitchers Way	52	165	1.5	4.6
22	Falmouth	Route 28 (Davis Straits) at Dillingham Avenue/Spring Bars Road	48	80	2.3	3.9
23	Yarmouth	Route 28 at East Main Street	46	74	1.2	2.0
24	Barnstable	Route 28 (Falmouth Road) at Strawberry Hill Road	46	94	1.6	3.2
25	Dennis	Route 28 (Main Street) at Route 134 (East-West Dennis Road)/Swan River Road	46	66	1.5	2.2
26	Bourne	Route 6 (Scenic Highway) at Nightingale Road	46	78	1.0	1.7
28	Barnstable	Route 28 (Falmouth Road) at Phinneys Lane	44	108	1.1	2.6
29	Barnstable	Route 28 (Falmouth Road) at Mary Dunn Way	44	96	1.3	2.8
31	Falmouth	Route 28 (Main Street) at Scranton Avenue	43	79	1.8	3.4
34	Barnstable	Route 28 (Falmouth Road) at Centerville Shopping Center	42	90	0.8	1.7
35	Mashpee	Route 28 (Falmouth Road) at Orchard Road/Asher's Path	41	65	1.4	2.2
36	Falmouth	Route 28 (Palmer Avenue) at Jones Road/Ter Heun Drive	40	80	1.4	2.8
40	Yarmouth	Route 28 at Higgins Crowell Road/Berry Avenue	38	82	1.3	2.8
44	Wellfleet	Route 6 at Main Street	38	66	1.6	2.7
47	Barnstable	Route 28 (Falmouth Road) at Lincoln Road	36	96	1.7	4.6
48	Mashpee	Route 28 at Job's Fishing Road/Donna's Lane	35	67	0.8	1.4
50	Barnstable	Route 28 (Falmouth Road) at Bell Tower Mall	35	75	0.7	1.4

As seen in the above table out of the top 50 locations, approximately half of those crashes occurred on Route 28. It should be noted that this top crash analysis is limited to intersection specific crashes and does not include the limited-access highway portion of Route 6.

Transit Usage

Ridership data is collected routinely by the mobile data computers linked to the fare boxes on the entire fixed route CCRTA system. The ridership on the demand response services (DART) is also recorded by the CCRTA. This data will be studied by the Cape Cod Commission in the future and development of detailed transit use and patterns of travel will be incorporated into the CMP.

The Sealine and H2O service routes generally follow the Route 28 corridor: Whereas the Flex service route generally follows the Route 6 corridor on the Outer Cape. A summary of transit usage from 2018 by service route is summarized in Table 7.

TABLE 7. CCRTA Ridership Data (2018)

SERVICE ROUTES	FY18	FY17
DART (Demand Response)	169,015	177,749
SeaLine	165,746	161,095
WHOOSH	14,073	17,753
Villager	45,524	48,077
Hyannis Loop	23,309	16,677
H20 Line	151,673	162,416
Provincetown/Truro Shuttle	82,933	87,726
Flex	87,346	89,255
Hyannis Shuttle	8,651	3,367
Bourne Line	10,928	13,457
Sandwich Line	23,961	24,944
CapeFLYER (Rail)	13,781	13,555

As seen in the above table, excluding the DART service, the Sealine, H20 and the Flex service routes are the busiest transits lines and are serviced on the congested corridors of Route 28 and Route 6. Improvements focused on the Route 28 and Route 6 corridors to reduce congestion and improve pedestrian connections would help continue to grow transit ridership for these routes.

Park-and-Ride Usage

Data collected at the three Park-and-Ride locations are organized in Figures 8, 10 and 12 to show the capacity and average occupancy for each of the lots from 2014-2018. In addition, a recent aerial image from Google Earth on October 5, 2018 is included as figures below for each lot and shows the parking lots at the Barnstable and Sagamore Park n Ride facilities nearing capacity. The data

was collected in various samples during the summer months and shows inconsistent trends when comparing the data.

The results show that the Barnstable lot is regularly nearing capacity. During two observations (in May 2017 and December 2018), the lot was observed to be over capacity with illegal vehicles parked. The Sagamore Lot has not been observed to exceed capacity in the last 15 years. The average occupancy does show that the Harwich lot averages fewer than 50 percent capacity for each year despite the removal of commuter bus service.



FIGURE 8. Barnstable Park n Ride Lot On Route 132

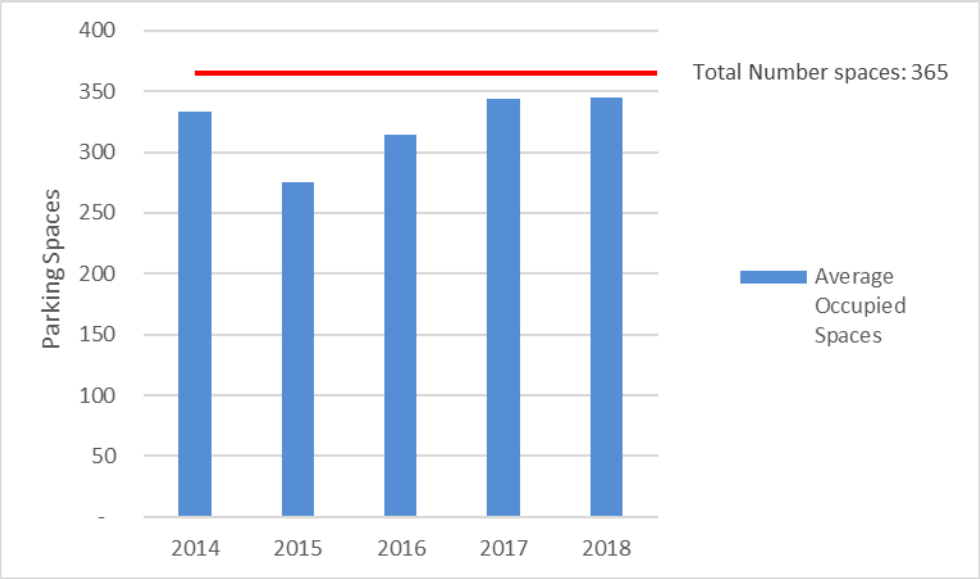


FIGURE 9. Barnstable Park n Ride usage



FIGURE 10. Sagamore Park n Ride Lot at the Sagamore Bridge

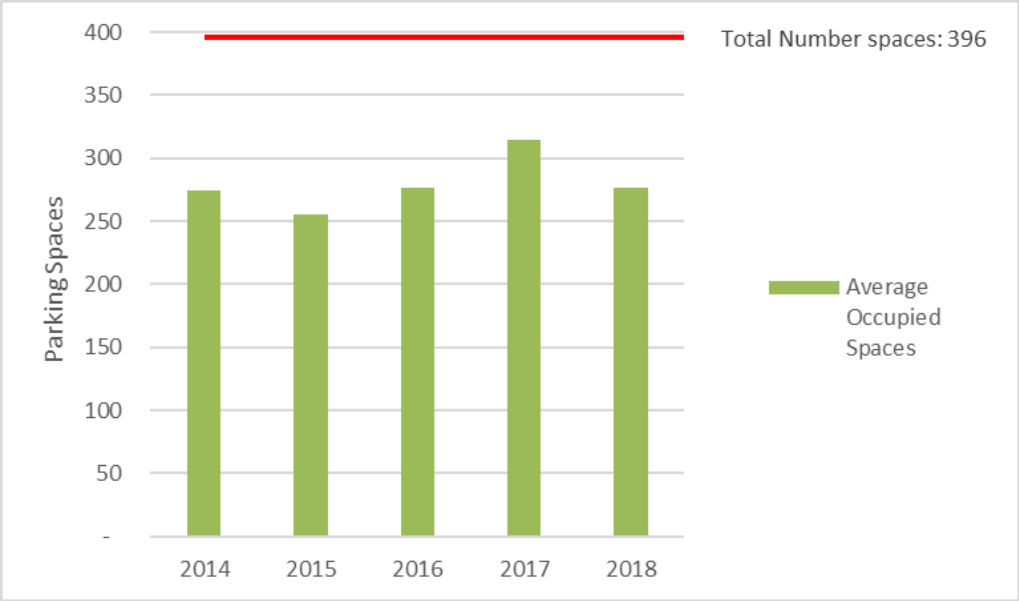


FIGURE 11. Sagamore Park n Ride Usage



FIGURE 12. Harwich Park n Ride Lot On Route 124

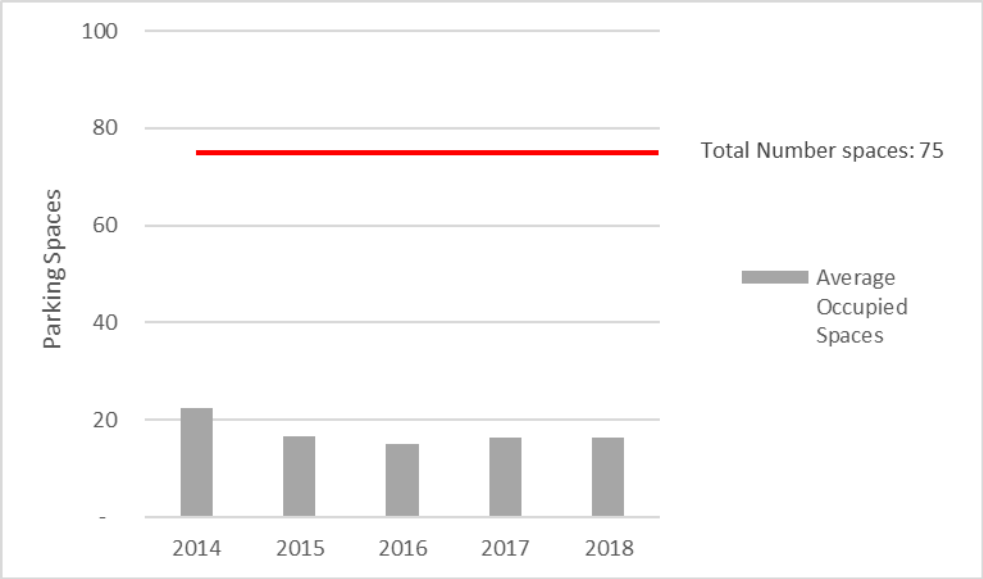


FIGURE 13. Harwich Park n Ride Usage

Walkability

To date, several healthy transportation studies have been performed related to pedestrian connectivity. The following figure summarizes the existing sidewalk network on Cape Cod. Based on this figure, approximately 47% of the Route 28 corridor does not currently have a sidewalk on it. Additional inventory efforts related to walkability on Route 28 and Route 6 will be performed as part of data collection efforts in the Summer 2019. Additionally, a future study will help to identify gaps in the pedestrian network at high ridership stops that do not contain amenities consistent with the transit stop buildout.



FIGURE 14. Sidewalk Network

Transportation Demand Management

Transportation Demand Management (TDM) measures are encouraged for private development projects on Cape Cod through a Development of Regional Impact (DRI) permit issued by the Cape Cod Commission. The current Regional Policy Plan (RPP) encourages all DRI projects at a minimum to implement best practices for TDM such as, carpool parking spaces, bicycle storage or posting of transit schedules. Larger sites are recommended to implement a site-specific TDM plan that could include a trip reduction monitoring program, subsidized transit passes or an on-site transportation. In addition, the RPP encourages growth to be focused in centers of activity and areas supported by adequate infrastructure to promote a multi-modal transportation system.

ANALYZE PROBLEMS AND NEEDS

Based on our data collection efforts previously summarized in the last section and based on previous and on-going studies that have been performed as part of the UPWP, the following problem areas have been identified for the Route 28 and Route 6 corridors:

- Park n Ride lot capacity exceeded (Barnstable)
- Cape Cod Canal Area bottleneck locations
- Route 28 and Route 6 bottleneck intersections

- Route 28 high crash locations
- Pedestrian gaps on Route 28 and Route 6 in the Outer Cape
- Bicycle multi-use path connectivity
- Increased transit service and expansion routes

IDENTIFICATION AND ASSESSMENT OF STRATEGIES

As part of the development of future regional documents such as the RTP and TIP, the following CMP strategies should be considered for the basis of future studies or have funding dedicated to address CMP strategies and problem areas. These seven strategies will aim to reduce congestion, improve safety and increase multi-modal opportunities.

Congestion Management Strategies

- Management and expansion of park n rides
 - Identify areas for expansion at existing park n ride lots
 - Recommend management upgrades for park n rides (fee structure)
 - Implement Canal study recommendation for a new Park n Ride lot in Sandwich
- Geometric improvements for certain bottleneck intersections
 - Improvements to allow for additional capacity or safety enhancements to reduce crashes and congestion in the Canal Area and other key location on the CMP network. Example may be additional turn lanes.
- Bicycle and pedestrian improvements
 - Improvements to pedestrian and bicycle infrastructure can help to encourage a higher proportion of people to walk or bike for their transportation needs, thus reducing automobile congestion.
 - Implement Vision 88
 - Address missing gaps in sidewalk network
 - ADA ramps/transition plans
 - Safety enhancements (RRFBs, crosswalk striping signage)
 - Promote multi-use paths
- Optimization of signal timings
 - Modify signal timings to allow for optimal flow through congested intersections. Recommend additional timing plans for some seasonal congested intersections.
 - Recommend adaptive signal technology.
- Increased transit service (including rail and inter-city bus)
 - Promote for additional transit services including year-round commuter rail and bus expansion for routes and service times. Note: CCRTA recently modified theSealine

route to serve Falmouth Hospital and Falmouth District Court, which are major destinations that were previously unserved.

- Leverage transit technology
 - Recommend potential transit signal technological improvements as part of intersection redesign projects on main transit corridors to all transit vehicles for an improved performance. Examples could be transit signal priority or queue jump or on-time performance information report to customers via mobile devices.
- Access Management
 - Promote smart development with appropriate access management to minimize congestion points and improve safety.
 - Promote TDM measures to offset single occupancy vehicles to sites to reduce congestion.

PROGRAM AND IMPLEMENTATION STRATEGIES

The results of the CMP will include the generation of studies to address issues that exceed the criteria developed to define transportation congestion for the region. These studies will produce recommendations that will be included in the RTP and TIP processes to be considered for construction or implementation. The table below summaries which improvement strategies could apply to the study area roadways.

TABLE 8. Potential Improvement Strategies for Congested Corridors on Cape Cod

	CORRIDOR		
IMPROVEMENT STRATEGIES	ROUTE 6 (MID-CAPE HIGHWAY) & CANAL AREA	ROUTE 6 (OUTER CAPE)	ROUTE 28
Management & Expansion of Park n Ride	X		
Geometric Improvements	X	X	X
Bicycle & Pedestrian	X	X	X
Signal Timing Optimization	X	X	X
Increased Transit Service	X	X	X
Leverage Transit Technology	X	X	X
Access Management		X	X

Recommendations for location specific actions/studies

Recommendations to the MPO to address issues that exceed the criteria developed to define transportation congestion for the region will generally come from studies conducted by the Cape Cod Commission transportation staff. Recommendations may also be developed by the towns and the CCRTA. All recommended projects and strategies will be evaluated by the Commission and the Cape Cod Joint Transportation Committee using the MassDOT evaluation criteria and with the RTP goals. Based on these evaluations, the CMP projects will be considered by the MPO for inclusion in the RTP and compete for funding within the TIP.

Recommendations for regional actions/studies

Some congestion problems will need to be addressed on a corridor-wide or system basis or require significant investments, such as the Canal Area improvements. Studies or remedial actions will be recommended to the MPO for their consideration and potential inclusion in the TIP or the UPWP. Projects with regional significance may become an initiative of the Statewide Transportation Program. These proposed projects may require a more extensive evaluation with regard to conformity with the Massachusetts State Implementation Plan (SIP). These projects may also become Transportation Control Measures (TCMs) and included as such in the SIP submitted to EPA.

EVALUATION OF STRATEGY EFFECTIVENESS

The CMP is an ongoing program that documents the region's mobility concerns. The CMP contains the most recent performance monitoring information for the regional transportation system. The information and general analysis of the system, using the criteria defined in the CMP and RTP processes, will provide the basis for the Cape Cod Commission Transportation staff and the Cape Cod Joint Transportation Committee to make recommendations. These recommendations will be made to the Cape Cod MPO as congestion reducing and mobility enhancing actions to be considered in the MPO planning and programming processes. The following evaluation will be used as part of the CMP to evaluate effectiveness.

- The UPWP performance measure task will be expanded to include additional analysis to support evaluation of multi-modal measures in the CMP.

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix H: Coastal Resiliency

JULY 15,
2019

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Technical Appendix H: Coastal Resiliency

To supplement the discussion provided in Chapter 4, this appendix provides additional information on the following:

- Critical Transportation Assets and their Vulnerability to Sea Level Rise
- Restoring River and Stream Continuity

CRITICAL TRANSPORTATION ASSETS AND THEIR VULNERABILITY TO SEA LEVEL RISE

As part of the 2014 Unified Planning Work Program, Cape Cod Commission staff conducted a vulnerability study titled *Critical Transportation Assets and Their Vulnerability to Sea Level Rise*.[1] The objective of this study was to understand the vulnerability of critical transportation assets to sea level rise, just one impact of climate change. Public transportation assets in each mode (air, highway, sea, transit and rail) were examined to determine whether the asset was critical to the network and/or the community and to assess the asset's vulnerability to sea level rise.

This study involved several activities: 1) developing online maps; 2) measuring criticality with stakeholders (defined below); 3) measuring vulnerability to sea level rise and 4) generating a list of transportation assets that are both critical to the modal system and vulnerable to sea level rise.

[1] http://www.capecodcommission.org/resources/transportation/UPWP3_4REPORTfinal.pdf

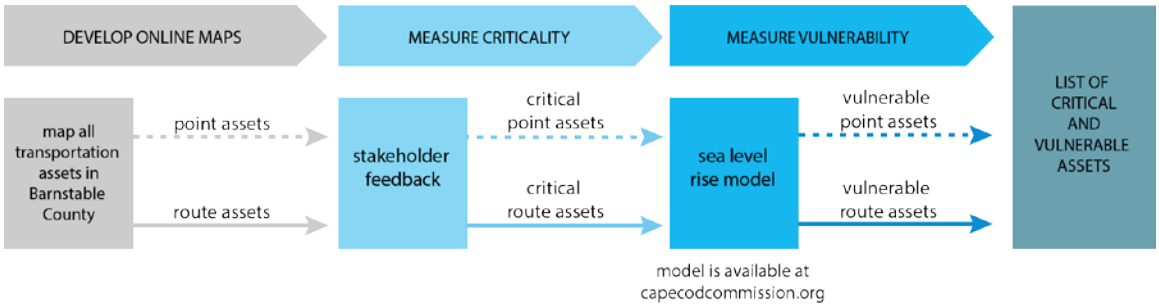


FIGURE 1. Outline of project activities and deliverables

There are five transportation modes in Barnstable County - air, highway, rail, sea, and transit. Research was performed to determine which assets are important to the functioning on each transportation mode. This list includes point assets, such as bridges, runways, and passenger terminals that are fixed to a single point on the land as well as route assets, such as roadways, bus routes, and train lines. All point and route transportation assets were plotted on digital maps using ArcGIS online.

Representatives from the Barnstable Municipal Airport, the Highway Division of Massachusetts Department of Transportation (MassDOT), Mass Coastal Railroad, the Steamship Authority, and the Cape Cod Regional Transit Authority (CCRTA) were identified as stakeholders for this project. During stakeholder meetings, Commission Staff presented mode specific online maps. Stakeholders were asked to review the maps for errors and make additions or corrections where appropriate. They also commented on the criticality of each asset in their mode. Next, stakeholders were asked to provide volume and ridership data from the year 2013 to understand the functioning of an asset in the community. In addition to the stakeholder meetings, online maps were also presented at two Metropolitan Planning Organization meetings where the general public, members of Federal Highway Administration, and MassDOT had the opportunity to comment on the list of assets.

Commission Staff input all transportation assets into a Sea Level Rise Viewer developed by the Cape Cod Commission (http://www.capecodcommission.org/SeaLevelRise/). The model output is a list of point assets vulnerable at 1 - 6 feet of sea level rise. The model also identified portions of route assets that were vulnerable to rising sea levels. Specifically, sections of roads, train tracks, and bus routes, were identified as impassable at 3 and 6 feet of water rise. The list of vulnerable assets was then quality checked by Commission Staff to ensure the accuracy of the data.

This study defined a "critical" transportation asset as either:

- vital to the functioning of the modal transportation network (i.e. maintains the mobility and accessibility function of the network)

- important to the social and economic functioning of the community (i.e. provides access to employment centers or increases connectivity between community components)

This definition of criticality is similar to the one described in a recent study conducted in the Gulf Coast.[2]

Air Transportation

Stakeholders identified the runway as the most important asset to the functioning of the airport because planes cannot land safely without a runway or cleared strip of land. The air traffic control tower was ranked second and the passenger terminal was identified as the third most important asset.

Stakeholders identified the Barnstable Municipal Airport as a critical airport on Cape Cod. It is the third busiest commercial airport in Massachusetts, behind Logan Airport and Nantucket Airport. Barnstable Municipal Airport plays an important role in the community; it provides access to, from and within the region, all-season emergency transportation, and full-time jobs to area residents. The present study used emplanement and employment data to quantitatively assess criticality of the airport. In 2013, the airport had over 85,000 emplanements (the number of people departing on a commercial aircraft) and provided over 2,000 jobs. For comparative purposes, Provincetown Municipal Airport had 11,288 emplanements and generated 343 jobs. It is important to note that the Provincetown Municipal Airport is also critical, but stakeholders ranked it under the Barnstable Municipal Airport because there is no control tower and it has less emplanements.

Highway Transportation

Highway stakeholders classified Routes 6, 6A, 28, 132 and Woods Hole Road as critical to the functioning of the highway network and to the community of Barnstable County. Urban Principal Arterial Roads, Willow Street and Route 134 were also considered critical. This study used AADT (Annual Average Daily Traffic) from 2013 to quantify network criticality. Routes 6, 28 and 132 have higher AADT than other roads on the Cape. Routes 6, 28, and 132 were considered important to the connectivity of Cape Cod because they provide access to town economic centers, villages, town facilities and emergency shelters. While Route 6A has a lower AADT than other roadways, stakeholders identified it as critical because it provides access to village centers across several towns in Barnstable County. Woods Hole Road has a lower AADT than other roadways on the

[2] Impacts of Climate Change and Variability on Transportation Systems and Infrastructure: The Gulf Coast Study, Phase 2, Task 1: Assessing Infrastructure for Criticality in Mobile, AL, U.S. Department of Transportation, September 2011, FHWA-HEP-11-029

Cape, but it is considered critical because it provides access to village centers and technology hubs located in Woods Hole, such as the Woods Hole Oceanographic Institution, ferry service to Martha's Vineyard the Steamship Authority, the National Marine Fisheries Service and U.S. Coast Guard.

Rail Transportation

Stakeholders identified the railroad bridge as the most critical asset to the functioning of the rail transportation system. The railroad bridge provides the only entry/exit point for trains in Barnstable County. The Yarmouth Line was identified by stakeholders as the second most critical asset because it carries more freight and passengers than the Otis line. The Otis line was also identified as critical because it carries over 35,000 tons of solid waste off of Cape Cod each year.

Sea Transportation

Stakeholders identified navigational aids (bells and buoys) as the primary critical asset to the functioning of the ferry system. These instruments are located in coastal waters and provide directional assistance to ferries coming into port. Ferry slips were ranked as the second most critical asset, the passenger terminal as third, and passenger parking lots as fourth.

Stakeholders considered the Steamship Authority, which operates out of Woods Hole and Hyannis, as highly critical to the network and community of Cape Cod. In 2013, the Steamship Authority ferry service carried over 2 million people, over 450,000 automobiles, and over 162,000 other vehicles (including trailers, pickups, vans, buses, campers, trucks of all sizes) between Cape Cod and the Islands. The Island Queen, which provides ferry service between Falmouth and Oak Bluffs, was also identified by stakeholders as a critical asset because it is one of the larger ferry services out of Falmouth with a 100+ occupancy. Stakeholders also ranked Patriot Party Boats as critical. This ferry service is small with a <40 person occupancy, but it is vital to the island communities since it runs early in the morning bringing over commuters and freight.

Transit Transportation

The Cape Cod Regional Transit Authority (CCRTA) is unique compared to other modes of transportation in Barnstable County because it offers two types of services: fixed route services and on-demand services. The demand response line, called the DART bus, provides 1100 rides per day and operates on every roadway on Cape Cod, including dirt roads. The DART bus is highly critical to the functioning of the community because it provides transportation to those with limited mobility options.

Stakeholders identified the fixed route H_2O Line and the Sealine as highly critical route assets in Barnstable County. Within the CCRTA network, the H_2O Line and Sealine are the most robust services, carrying 155,717 and 132,406 people, respectively. Transit stakeholders also identified

Routes 6, 28, 132, 134, and Woods Hole Road as highly critical to the operation of the CCRTA buses. There are several transportation hubs located throughout the Cape; the largest is located in Hyannis. Stakeholders identified the Hyannis hub as highly critical to the transit system because it is used by CCRTA, Plymouth & Brockton, Peter Pan, and the Steamship Authority Shuttle.

Vulnerability to Sea Level Rise

All point assets identified in this study were run through the Cape Cod Commission's Sea Level Rise Viewer to determine whether the assets were submerged at 1 - 6 feet of water rise. Figure 2 shows the transportation assets that are vulnerable to sea level rise in Barnstable County.

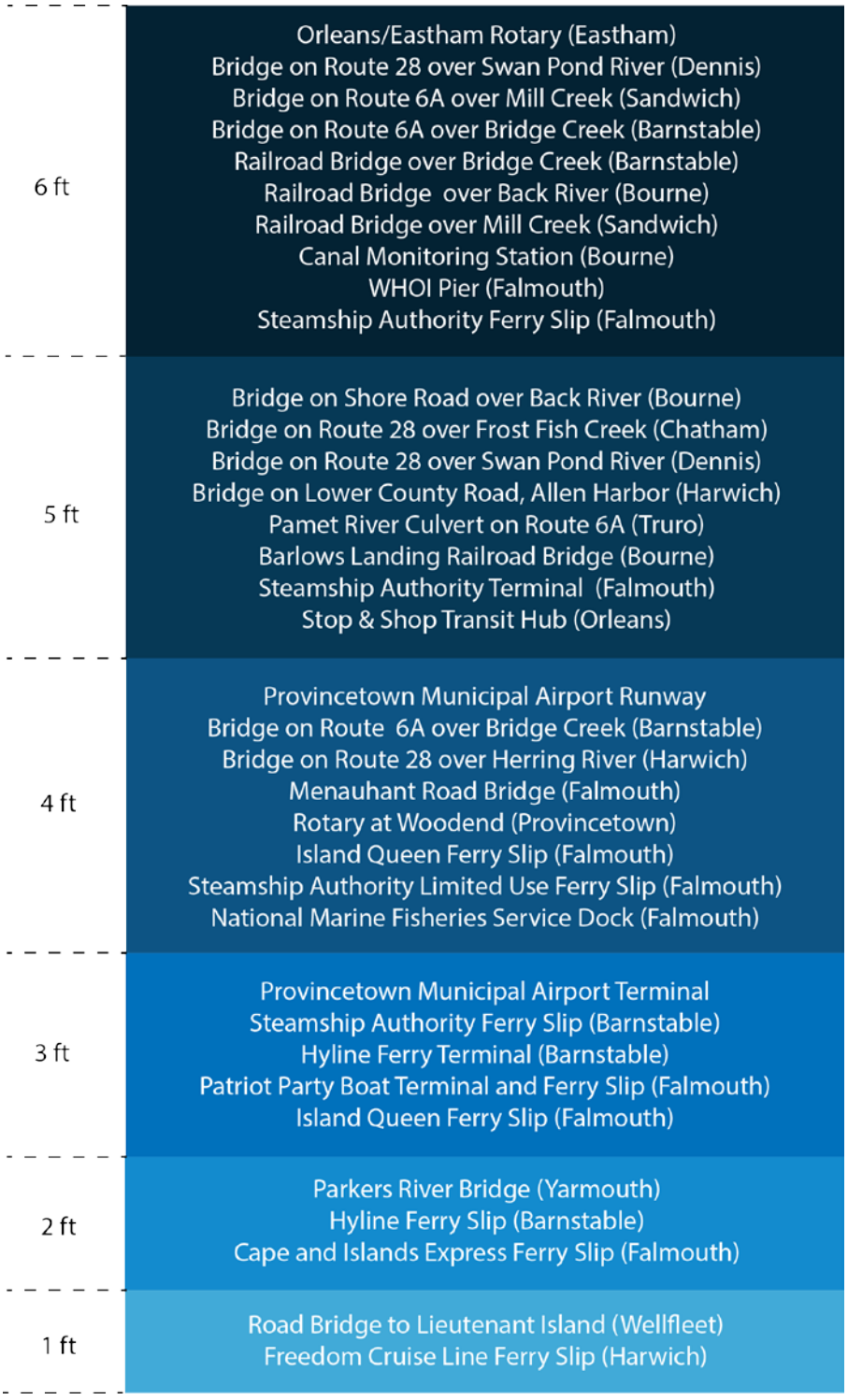


FIGURE 2. Transportation point assets that are vulnerable to 1-6 feet of sea level rise

The Sea Level Rise Viewer also identified areas of roads and track that are vulnerable to 3 and 6 feet of water rise. Figure 3 and Figure 4 show areas of impassable roadways at 3 feet and 6 feet of rise, respectively. Figure 5 and Figure 6 highlight portions of transit routes that are impacted at 3 feet and 6 feet of water rise, respectively. Figure 7 shows the portions of track that will be submerged at 6 feet of water rise. According to the Cape Cod Commission's Sea Level Rise Viewer, track lines are not vulnerable at 3 feet of sea level rise; although stakeholders reported seeing water in the rail ballast during full moon high tides.

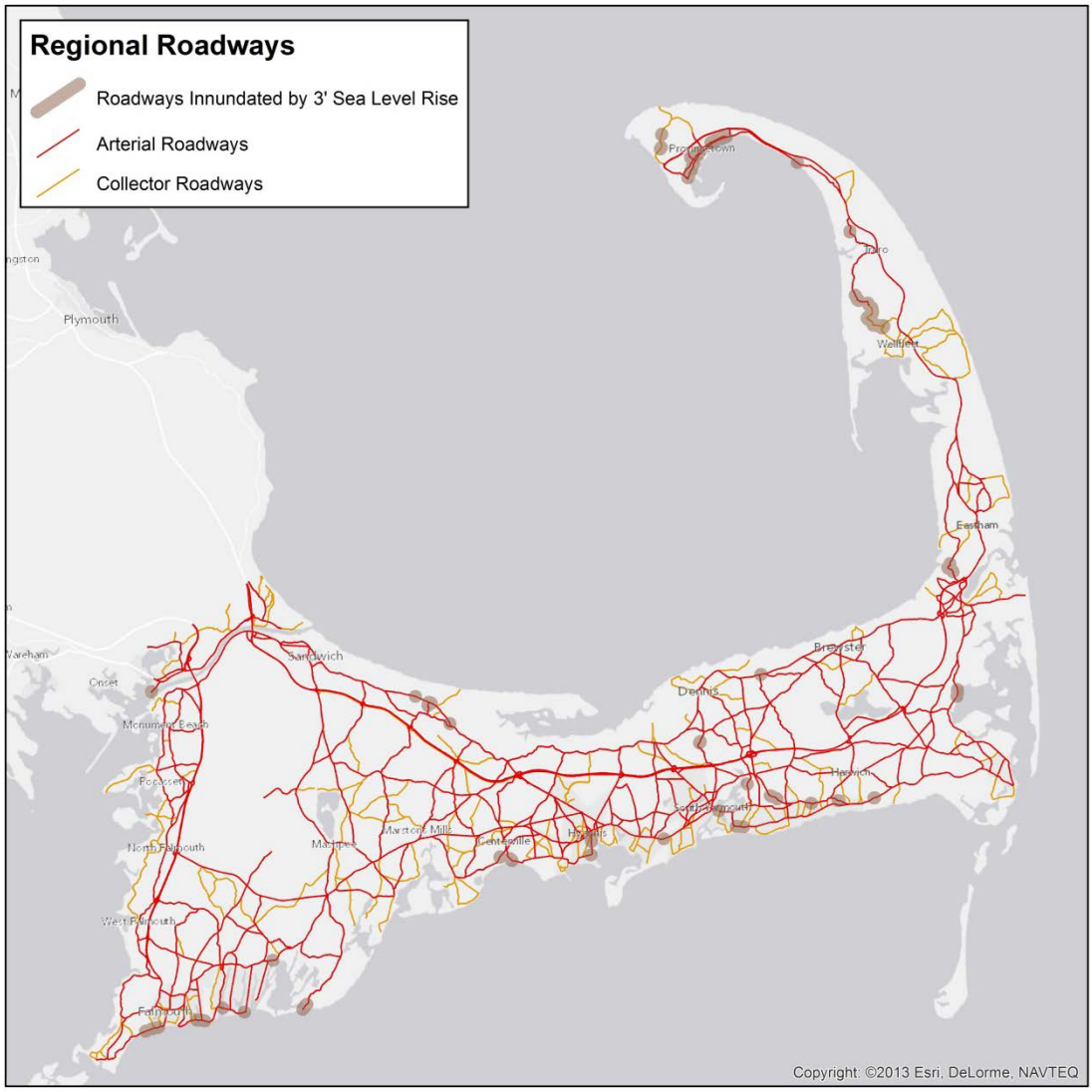


FIGURE 3. Submerged regional roadways at 3 feet of sea level rise

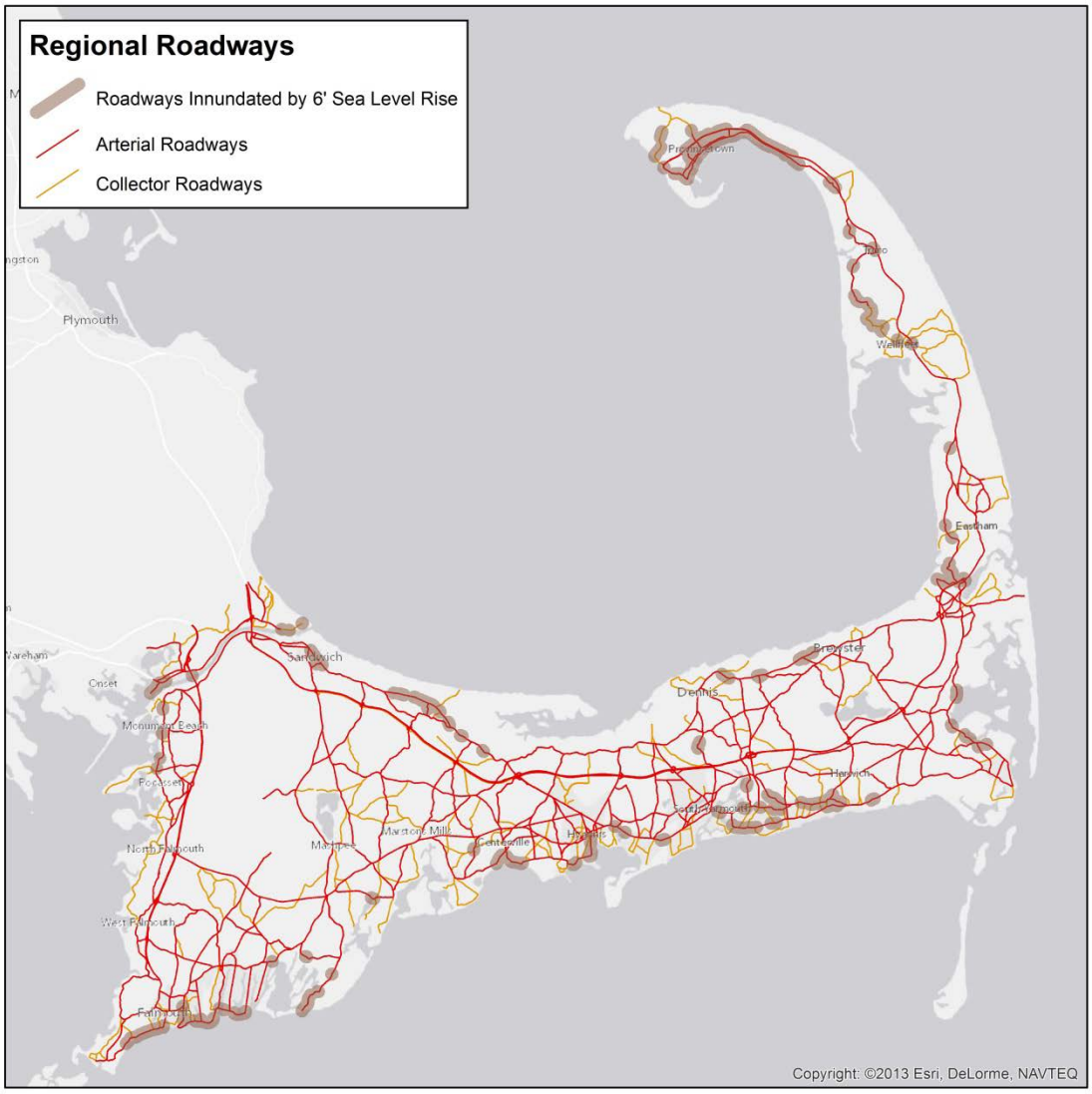


FIGURE 4. Submerged regional roadways at 6 feet of sea level rise

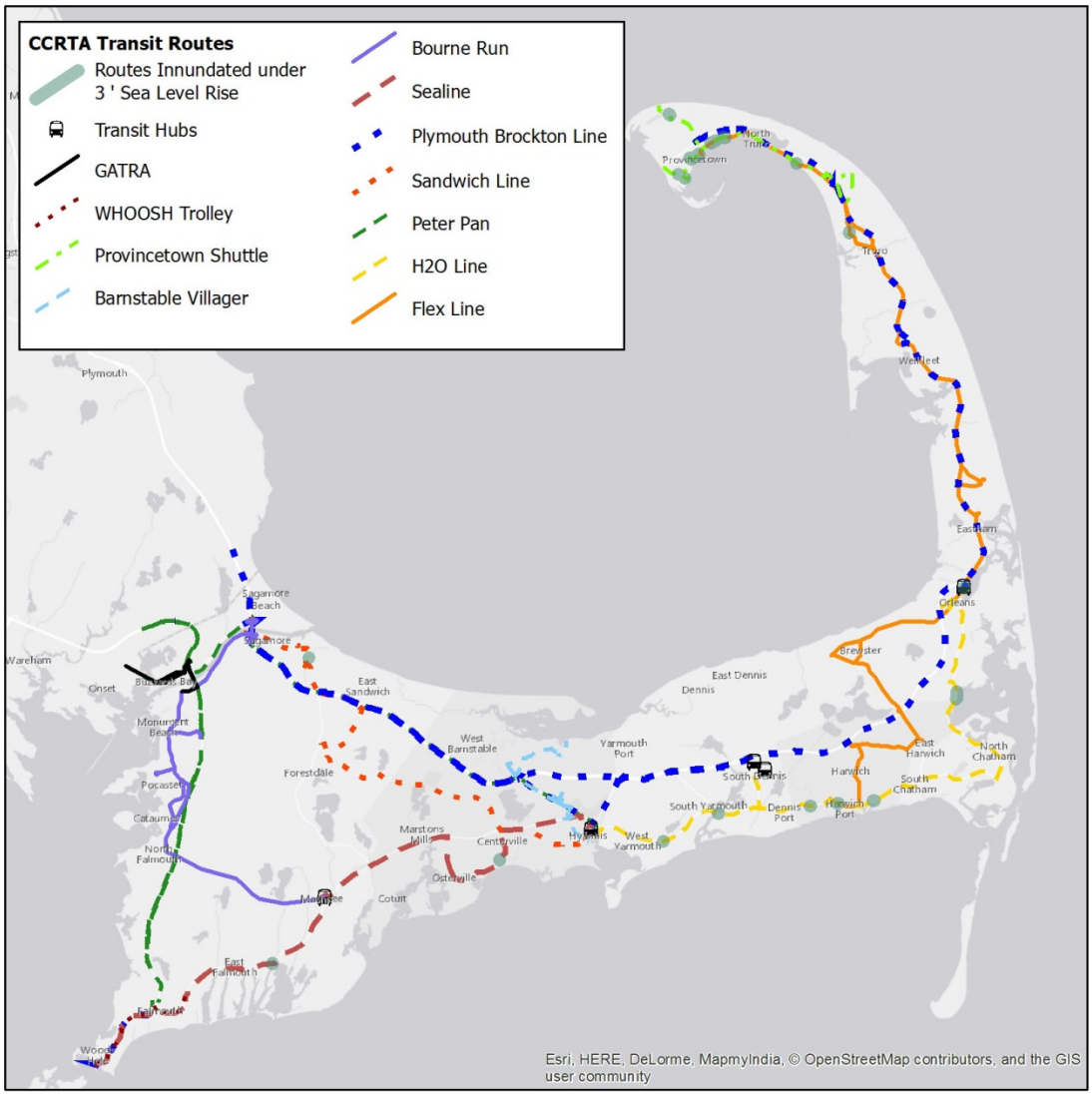


FIGURE 5. Submerged transit routes at 3 feet of sea level rise

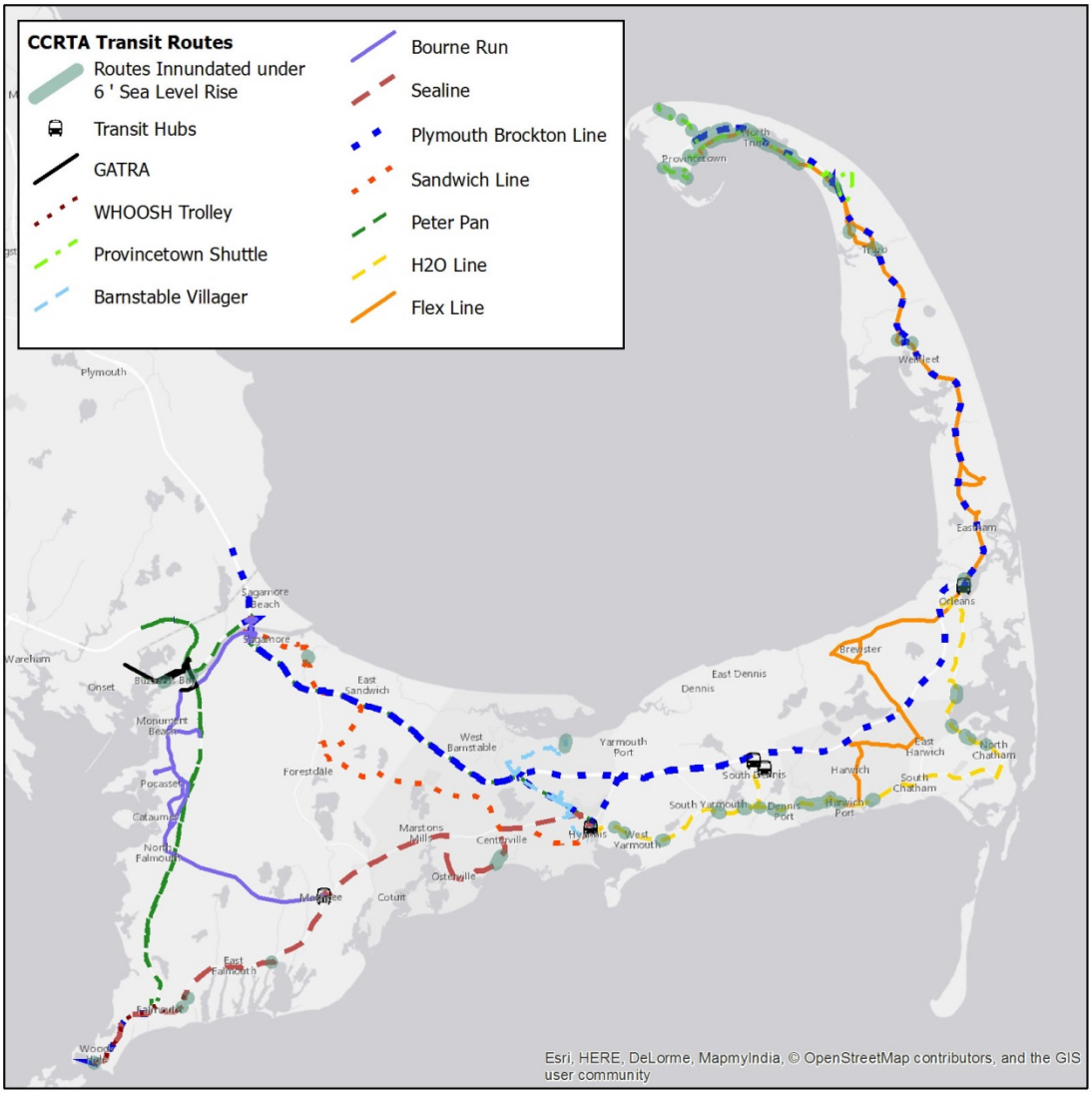


FIGURE 6. Submerged transit routes at 6 feet of sea level rise



FIGURE 7. Submerged track at 6 feet of sea level rise

The data collected in this study shows that Cape Cod has many transportation assets that are vulnerable to sea level rise. During the drafting of this report, MassDOT announced they are constructing a dynamic sea level rise model for the coastline of Massachusetts. While the Cape Cod Commission's Sea Level Rise Viewer is an excellent first-step, the dynamic model generated by MassDOT will be more accurate in predicting asset vulnerability. Given the number of assets vulnerable to sea level rise on Cape Cod, it is critical that this dynamic model become available to Planning and GIS Staff in Barnstable County as soon as possible. Commission staff and several Barnstable County Commissioners advocate that MassDOT construct the model starting with the southern coastline of Massachusetts.

This study identified several transportation assets that are both vulnerable to sea level rise and critical to the community and the transportation network, including:

- AIR: The runway and passenger terminal at the Provincetown Municipal Airport will likely be submerged at 3 - 4 feet of sea level rise. This asset was also identified as vulnerable in the UPWP 2.5 Report from 2013.
- HIGHWAY and TRANSIT: The Orleans/Eastham Rotary on Route 6 will likely be submerged at 6 feet of sea level rise. Once this asset is submerged, the Outer Cape will essentially become an island, completely isolating Route 6 in Eastham, Wellfleet, Truro and Provincetown from other regions. When the Rotary becomes submerged, both Highway and Transit infrastructure will be affected.
- RAIL: Portions of the Yarmouth rail line in Sandwich will likely be submerged at 6 feet of water rise. In this area, the track traverses marsh areas in the Town of Sandwich. This site was also identified as vulnerable in a report generated by the Provincetown Center for Coastal Studies[3].
- SEA: The Steamship Authority ferry slip in Barnstable will likely be submerged at 3 feet of sea level rise.

RESTORING RIVER AND STREAM CONTINUITY[4]

Where roads, rail lines, and bike paths cross freshwater streams and tidal creeks, a bridge or a culvert stream crossing carries the waterway underneath. Stable, appropriately-sized stream crossings maintain the natural hydrology and ecology of rivers and tidal wetlands. Stream crossings that are improperly sized or placed, however, often negatively impact river and stream ecosystems. To maintain healthy conditions, rivers and tidal creeks must be able to convey water, sediment, and organic material without artificial restriction, and allow fish and wildlife to move through unimpeded. When stream crossings are undersized or improperly placed, water flow and wildlife are disrupted and habitats can become degraded.

Well-designed crossings not only enhance habitat for fish and wildlife but also improve infrastructure resiliency during storms and floods. Over the last 40 years, floods and severe storms have become more frequent in New England. Climate change predictions suggest that this trend will continue. Research by The Nature Conservancy, UMass-Amherst, and others has

[3] A Proposal to Assess Inundation Vulnerability of CCRTA Rail Infrastructure to Coastal Flooding Associated with Tides, Storms and Sea Level Rise, prepared by the Provincetown Center for Coastal Studies

[4] Information in this provided by Mr. Hunt Durey of the Massachusetts Division of Ecological Restoration, replicated with permission

demonstrated that undersized crossings are more likely to fail during large storms. In addition, a recent study commissioned by the Massachusetts Division of Ecological Restoration (DER) found that proactively upgrading deficient crossings to meet stream crossing standards can be more cost-effective over a 30 year period than maintaining the existing structures. Significant long-term savings can be realized by reducing repair costs and preventing storm damage caused by road and culvert failures.

Over the past decade, resources have been developed to help transportation planners assess, prioritize, and upgrade stream crossings to protect and improve environmental health. To help identify tidal stream crossing replacement needs, towns and other partners have developed an inventory of tidal restrictions that can be obtained by contacting the Association to Preserve Cape Cod.[5] DER, UMass-Amherst, the Nature Conservancy, and others have also developed a series of tools and trainings to help communities locate and assess non-tidal stream crossings and replace undersized crossings with improved structures. More information is available at the Stream Continuity website.[6] UMass has also developed data that prioritizes road-stream crossings by ecological importance. These data are available at the Critical Linkages website.[7]

The following sections summarize the impacts of transportation infrastructure on rivers and tidal systems and propose Cape Cod RTP objectives to protect and restore river and stream continuity.

Tidal Stream Crossings

Culverts and bridges that are too small to pass the full tidal range are known as tidal restrictions, and their impacts can be severe. Many stream crossings on Cape Cod restrict tidal flow. By limiting tidal flow, restrictions alter water levels and chemistry, diminish exchange of ocean nutrients, and can degrade entire upstream aquatic systems. Tidal restrictions often impair water quality, block the passage of fish and other aquatic life, and impede a marsh's ability to build elevation in response to sea level rise. They may also create favorable conditions for invasive species such as *Phragmites australis*. When properly designed, replacing a tidally-restrictive crossing with a larger culvert or bridge restores the natural tidal flow needed to sustain healthy tidal wetland habitats.

Freshwater Stream Crossings

Undersized or improperly placed crossings impact natural stream processes and prevent fish and wildlife from moving about the watershed. Streams and rivers are long, linear ecosystems that connect and nourish wetlands and other aquatic habitats. Small streams carry water, sediment,

[5] http://www.apcc.org/

[6] http://www.streamcontinuity.org/index.htm

[7] http://www.umasscaps.org/applications/critical-linkages.html

and organic material downstream into larger rivers that discharge into estuaries and the ocean, creating an interconnected and interdependent system of aquatic life. Fish and wildlife use rivers as migration corridors. Fish such as river herring and Eastern brook trout need to access different parts of the watershed at different points in their life cycles. Amphibians such as salamanders, turtles, and frogs spend much of their lives near streams and travel near and along a stream's length.

Stream crossings can disrupt stream continuity and impact freshwater ecosystems in the following ways:

- Undersized crossings restrict water flow, particularly during storms. These crossings may contribute to extensive channel scour, bank erosion, flooding, and crossing failure. Undersized crossings may be too small, and the flow may be too fast, to pass fish or wildlife.
- Shallow crossings have water depths that are too shallow for fish and other aquatic life to migrate through.
- Perched crossings have an outlet that is elevated above the level of the stream bed at the downstream end. Perched crossings block fish and wildlife from moving upstream.

Current Regulations

Massachusetts developed Stream Crossing Standards for freshwater streams to protect and restore aquatic habitats and fish and wildlife populations. The MA Wetlands Protection Act and Water Quality Standards now require that all new crossings meet the Standards. Existing crossings that are being repaired or replaced must also meet the Standards to the maximum extent practicable. See this handbook for more information on the Standards.[8]

Objectives to Protect and Restore Rivers and Tidal Systems

The following objectives will help reduce the impacts of transportation stream crossings on the natural environment while also contributing to the resiliency of coastal communities facing climate change.

Objectives for the restoration and protection of freshwater river and stream continuity

- Assess existing freshwater stream crossings for stream habitat continuity using the Massachusetts Stream Continuity Assessment Protocol.[9] Contact DER[10] for additional information about assessment approaches and resources.

[8] http://www.mass.gov/eea/docs/dfg/der/pdf/stream-crossings-handbook.pdf

[9] http://www.streamcontinuity.org/assessing_crossing_structures/index.htm

[10] http://www.mass.gov/eea/agencies/dfg/der/

- Proactively replace deficient freshwater crossings with those that meet the optimal stream crossing standards at sites identified by the Critical Linkages data as having high ecological importance.
- When freshwater stream crossings require significant maintenance or replacement, upgrade with structures that meet the stream crossings standards.
- When designing new or replacement stream crossings, use current precipitation data such as that available at http://precip.eas.cornell.edu/. Data from older sources such as TP-40 may no longer be accurate and can significantly under-predict the amount of rainfall generated by storm events.

To date, few freshwater stream crossings on Cape Cod have been field evaluated for stream continuity. The Critical Linkages Project[11] identifies the locations of road-stream crossings and predicts the relative ecological importance of each crossing. The Critical Linkages data set can be used as a tool to locate crossings and prioritize their field assessment and replacement.

FRESHWATER STREAM CROSSING HIGHLIGHT

The Route 6 crossing over Fresh Brook in Wellfleet has been identified as a barrier to fish and wildlife passage. Fresh Brook has been identified by the MA Division of Fisheries and Wildlife and others as a high priority for ecological restoration, as it is one of the only coldwater streams in the Outer Cape. Any work on Route 6 in the vicinity of this crossing should evaluate the potential of installing a larger culvert that meets stream crossing standards.

Objectives for the restoration and protection of tidal systems:

- When replacing crossings on tidal creeks, evaluate the need for, feasibility of, and potential benefits of installing crossings that restore passage of the full natural tidal flow (Table 1).
- Provide financial support for ongoing tidal restoration projects that have already been evaluated for restoration potential and have Town and partner support (Table 2).

The following tidal crossings have been identified by DER and others as sites for further evaluation for restoration potential. DER, the Towns, or other partners may have data and plans for many of these sites but may not have initiated a tidal restoration project yet, and potential costs have not yet been determined. Any planned road, bridge, or culvert work at these sites provides an opportunity to evaluate the degree to which tidal hydrology is currently restricted and to assess the feasibility and cost of installing an upgraded crossing that restores natural tidal flow.

[11] http://www.umasscaps.org/applications/critical-linkages.html

TABLE 1. Tidal crossings for further evaluation and potential replacement

TOWN	LOCATION (LAT. LON.)	ATLAS ID	DESCRIPTION	POTENTIAL ACRES OF TIDAL WETLAND RESTORATION
Barnstable	Lat 41.701171 Lon -70.352397	BA-4	Penn Central Railroad restriction of Brickyard Creek	8.5 acres
Barnstable	Lat 41.703529 Lon -70.288247	BA-6	Commerce Road restriction of Maraspin Creek	5 acres
Barnstable	Lat 41.639179 Lon -70.361022	BA-12	Bay Lane restriction of unnamed channel off Bumps River	10 acres
Chatham	Lat 41.667230 Lon -69.966274	CH-5	Stage Harbor Road restriction of Champlain Creek	5 acres
Chatham	Lat 41.702256 Lon -69.969693	CH-6	Route 28 restriction of Frost Fish Creek	42 acres
Harwich	Lat 41.677695 Lon -70.098274	HA-4	Lothrop Road restriction of a tributary to the Herring River.	14 acres
Truro	Lat 41.993728 Lon -70.050225	TR-3	Route 6A Restriction of Pamet River	150 acres (Inclusive of TR-4)
Truro	Lat 41.993551 Lon -70.048038	TR-4	Route 6 Restriction of Pamet River	150 acres (inclusive of TR-3)
Truro	Lat 42.050591 Lon -70.116993	TR-6	Route 6A and Route 6 obstruction of Pilgrim Lake	300 acres
Wellfleet	Lat 41.91435 Lon -69.987383	WE-3	Route 6 Restriction of Blackfish Creek	17 acres
Yarmouth	Lat 41.707358 Lon -70.249647	YA-3	Thacher Shore Road restriction of Short Warf Creek	4 acres

Several sources of information were used to inform the list above including: the 2001 Cape Cod Atlas of Tidally Restricted Marshes prepared by the Cape Cod Commission, the 2008 Atlas Update prepared by DER, the Cape Cod Conservation District (CCCD) Cape Cod Water Resources Restoration Project List, and the draft update to the Cape Cod Water Resources Restoration Plan currently under development by the CCCD, Association to Preserve Cape Cod, and MassBays Program.

The tidal restoration projects listed in Table 2 are actively in development, have Town support, partner interest, significant data, and in some cases feasibility or design-level information, but are in need of funding.

TABLE 2. Ongoing tidal crossing replacement projects with high restoration benefit

TOWN	TITLE	DESCRIPTION	ESTIMATED COST
Truro	Mill Pond	Mill Pond in Truro has been severely degraded by a tidal restriction beneath Mill Pond Road for over 150 years. The project will restore tidal flow to this 13-acre system and will benefit shellfish and finfish species while encouraging a more natural wetland plant community.	$750,000
Truro	Eagle Neck Creek	Eagle Neck Creek is a 16-acre degraded tidal marsh that flows into Pamet Harbor and Cape Cod Bay. A road and culvert crossing the creek obstruct tidal flushing of the system. The project will remove the tidal restriction to restore salt marsh functions and benefit associated shellfish, finfish, and other coastal wildlife.	$1 Million
Wellfleet	Mayo Creek	Mayo Creek is a 30-acre tidal restoration opportunity. By re-establishing tidal flow, this project will reduce invasive plant growth, improve water quality for shellfishing, and enhance fish and wildlife habitat. The Town is evaluating options for providing town water and sewer to area residents to address concerns about salt water intrusion.	$500,000
Harwich	Cold Brook	Restoration of Cold Brook will transform 66-acres of retired cranberry bogs into a diverse, self-sustaining fresh and brackish wetland. The site is located at the head of tide, and culverts under Hoyt Road and Route 28 limit tidal exchange. Increasing the hydraulic capacity of these two crossings would promote tidal restoration today and future marsh migration in response to sea level rise.	$1.5 Million
Wellfleet	Herring River	This project will replace the Chequessett Neck Road Dike with a bridge and water control structures to restore tidal flow to the 1,000-acre Herring River Estuary. Other restrictions to tidal flow will also be removed or modified.	$44 Million

TIDAL RIVER CROSSING HIGHLIGHT

Listed in Table 2, the Herring River Estuary Restoration Project[12] in Wellfleet and Truro is the largest, highest priority estuary restoration in the Northeastern United States. Restoration of tidal flow to this river and adjacent wetlands will generate significant social, environmental, and economic benefits. The project is currently developing engineering designs and proceeding through multiple environmental reviews. Significant funding will be needed to cover the estimated $40-$50 million construction cost.

[12] http://www.mass.gov/eea/docs/dfg/der/pdf/herringriver-project-sheet.pdf

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2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix I: Stormwater Management

JULY 15, 2019

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Technical Appendix I: Stormwater Management

Stormwater runoff is caused by precipitation from rain and snowmelt events which flow over land or impervious surfaces and is unable to percolate into the ground. In natural systems, precipitation may be directly infiltrated subsurface, stored in natural depressions, or reintroduced to the atmosphere through evapotranspiration. However, development such as buildings, roads, sidewalks, and paved driveways increases impervious surface area and alters natural hydrology. The increase in impervious cover that accompanies development results in two main issues related to stormwater: 1) greater volume and peak flows of runoff and 2) transportation of contaminants into water bodies.

In natural ecosystems, runoff is infiltrated into groundwater and discharged to freshwater streams, ponds, lakes, rivers and marine estuaries. Flooding is less significant in these natural systems because greater volumes of stormwater are able to infiltrate through the soil, passing it from the surface to the groundwater. In urbanized areas, dense impervious cover reduces the amount of infiltration that can occur. The increase in stormwater runoff volume results in increased ponding, flooding, and hydroplaning potential on roadways, which makes roadways unsafe for travel.

Stormwater runoff flushes pollutants and debris from impervious areas and discharges them to local waterways. Common pollutants found in stormwater runoff include oil; grease and metals from vehicular traffic; salts and other deicing agents used to maintain safe roadway operation under winter weather conditions; pesticides and fertilizers from landscaping activities; sediments from various activities; altered water temperatures and litter. When conveyed by stormwater runoff these pollutants impair waterways, degrade natural habitat, pollute groundwater, increase flooding, cause erosion of streambeds or siltation of waterways, and decrease the amount of water recharged to aquifers. Transported by stormwater runoff, pollutants find their way into the ground and surface waters throughout Cape Cod. These waters with increased pollutant loads ultimately discharge to coastal embayments.

STORMWATER MANAGEMENT CHALLENGES ON CAPE COD

What makes Cape Cod a unique area for stormwater management is the combination of highly porous native soils left by the retreating glaciers and shallow groundwater levels, which are especially prevalent in coastal communities. Well-drained soils readily infiltrate runoff, providing excellent volume reduction of stormwater. However, the combination of highly permeable soils and

a high water table results in rapid infiltration of contaminated stormwater runoff in to the groundwater. Because groundwater on Cape Cod travels towards nutrient-sensitive coastal embayments, the quality of stormwater runoff is a concern.

Where most efforts to manage stormwater focus on moving the volume of water off roadways, stormwater management on Cape Cod also requires addressing the quality of stormwater that infiltrates to the Cape's groundwater (drinking water) resources and the Cape's coastal estuaries.

Stormwater and Drinking Water Protection

Drinking water on Cape Cod is provided by a sole source aquifer and because of the hydrogeology of Cape Cod, the aquifer is sensitive to stormwater runoff. Areas of land that receive precipitation to recharge drinking water wells are called Wellhead Protection Areas (WPAs). Stormwater management is particularly important in these areas because contaminated stormwater runoff can potentially contaminate drinking water supply. Because of this threat, WPAs have specific regulations in place to protect the Cape's drinking water supply. Potential Water Supply Areas (PWSAs) have also been identified on Cape Cod to ensure consideration and possible protection of suitable land for drinking water wells. WPAs and PWSAs are mapped water resources areas in the Cape Cod Commission's Regional Policy Plan (RPP) and have specific regulatory review standards.

TMDLS and Impaired Watersheds on Cape Cod

The allowable load of a particular contaminant that changes a healthy system to a deteriorating system is defined as a critical threshold, which under the federal Clean Water Act is referred to as a Total Maximum Daily Load (TMDL). TMDLs determine the maximum allowable load of a pollutant to a water body that still enables that water body to meet state water quality standards. Establishing a TMDL includes identifying and quantifying sources of the pollutant of concern (from both point and non-point sources), taking into consideration a margin of safety, seasonal variations, and several other factors. Communities are required to restore impaired surface water bodies where a TMDL is determined. TMDLs are determined for specific pollutants such as nitrogen, phosphorous, and pathogens.

NITROGEN

In marine and coastal embayments, nitrogen generally acts as the limiting nutrient. Due to the Cape's unique geology, very little nitrogen is removed from groundwater by natural processes, so increased nitrogen loading from development has a particularly significant effect on the nitrogen-limited coastal embayments of Cape Cod. When an excess of nitrogen is introduced to an embayment, changes in the natural ecology will occur. A common result from excess nitrogen loading is eutrophication, which is the overgrowth of certain plant species (e.g. algae), often leading to the loss of species diversity and community richness, and overall habitat degradation. In some severe cases eutrophication creates anoxic environments resulting in fish kills, loss of eel grass, and aesthetically unpleasant conditions.

Nitrogen sources include septic systems and other water treatment facilities, fertilizer, stormwater, atmospheric nitrogen, sediment nitrogen, and natural background.

As of 2018, the Massachusetts Estuaries Project has studied 40 Cape Cod embayments. Of the 40 studied embayments, 36 are considered "impaired" and have a nitrogen TMDL that have been approved by the Massachusetts Department of Environmental Protection (MassDEP) and the U.S. Environmental Protection Agency (EPA). Though the majority of nitrogen reaching the coastal embayments originates from septic systems, a reasonable percentage of all controllable nitrogen sources originate from impervious surfaces (i.e. stormwater). The Waste Load Allocation (WLA) calculations in the Nitrogen TMDLs consider runoff from the entire impervious area within a 200 foot buffer zone around all waterbodies.

FIGURE 1. Stormwater Runoff Nitrogen Load to Impaired Embayments

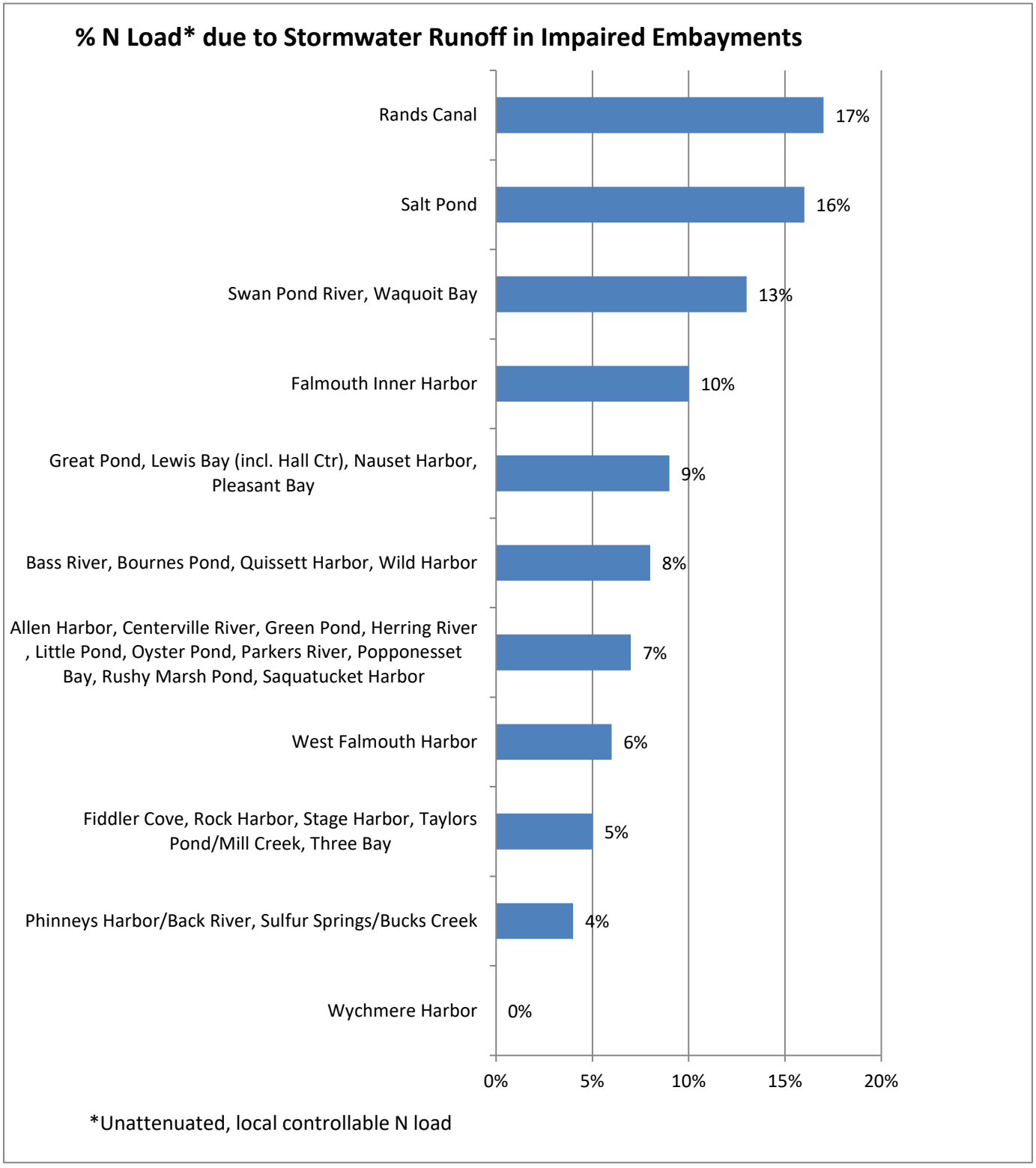
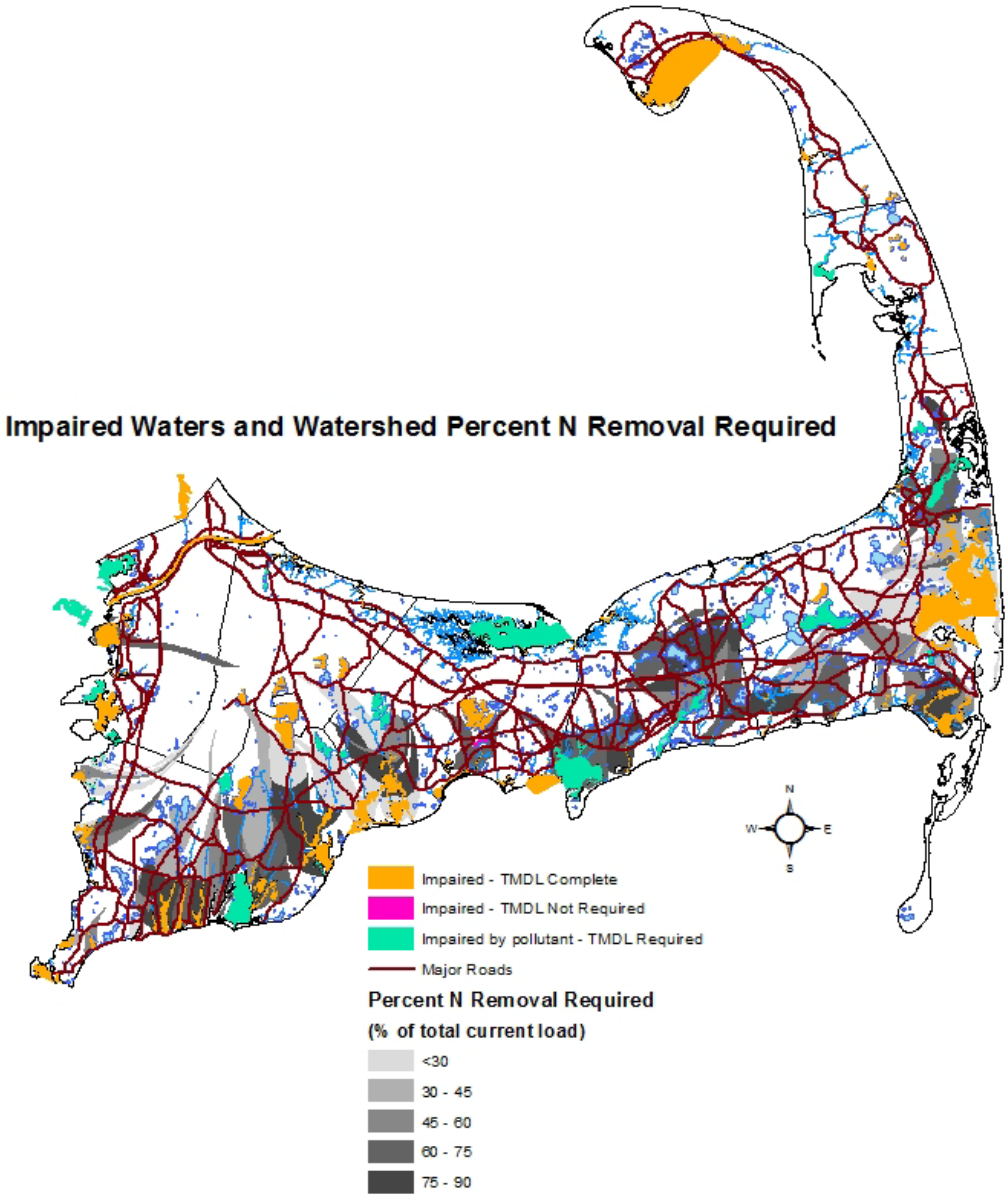


FIGURE 2. Impaired Waters and % Nitrogen Removal Required in Subembayments



BACTERIA

Pathogens can pose a risk to human health by causing gastrointestinal illness through exposure via ingestion, contact with recreational waters, and consumption of filter-feeding shellfish. Waterborne pathogens enter surface waters from a variety of sources including sewage, the feces of warm-blooded wildlife, pets, geese, gulls, and illicit discharges of boat wastes. Areas of elevated bacteria levels in Cape Cod watersheds are believed to be primarily from boat wastes, pets, wildlife, birds, stormwater, and failing septic systems. 85% of Cape Cod's watershed populations (residences and businesses) have individual septic systems for disposal of human wastes. Septic system failures or poorly performing systems play an important part to the bacterial contamination throughout the Cape.

Pathogen TMDLs were developed for all Cape Cod Watersheds using fecal coliform as an indicator bacterium for shellfish areas, enterococci for bathing in marine waters, and E. *coli* for fresh waters. Understanding sources of bacteria is essential while selecting appropriate stormwater management strategies.

Pathogen TMDLs exist for 86 pathogen-impaired water body segments on Cape Cod, defined through the following TMDL documents:

- Final Pathogen TMDL Report for the Cape Cod Watershed (49 segments) - 2009
- Addendum to Final Cape Cod Pathogen TMDL Report (17 segments) – 2012
- Final Pathogen TMDL for Buzzards Bay Watershed (14 segments) - 2009
- Final Pathogen TMDL for Three Bays Watershed, Barnstable, MA (4 segments) - 2009
- Bacteria TMDL for Muddy Creek - 2005
- Bacteria TMDL for Frost Fish Creek, Chatham, MA – 2005

The WLA calculation for the pathogen TMDL assumes a 200-ft buffer zone around embayments as the contributing area for stormwater. According to the Cape Cod Watershed TMDL, data indicate that in general, two to three orders of magnitude (i.e., greater than 90%) reductions in stormwater fecal coliform loading will be necessary, especially in developed areas.

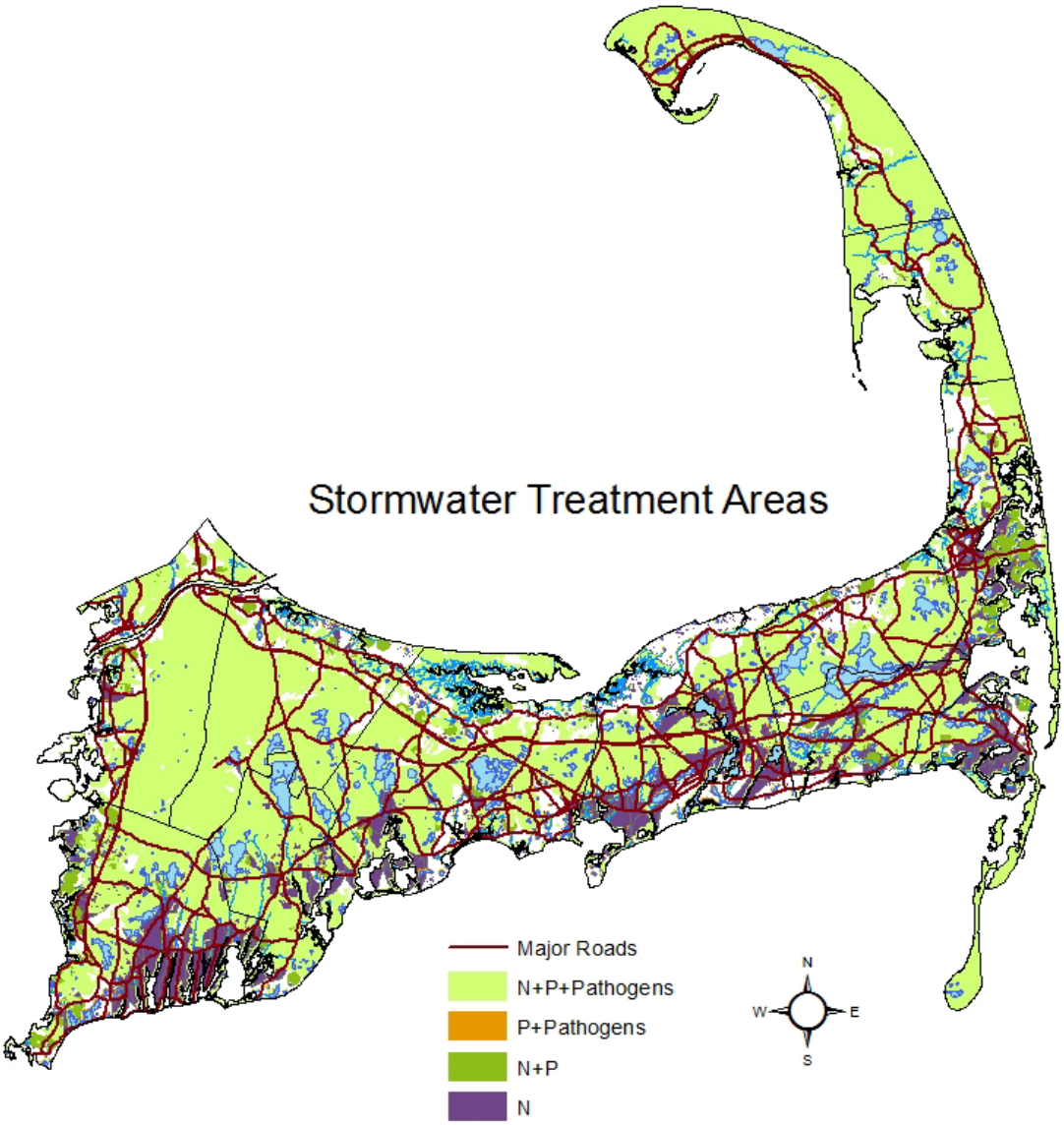
Stormwater Runoff and Sensitive Resource Areas

The map, below, identifies resource-sensitive areas (and buffers around those areas) that can be sensitive to pollutants in stormwater runoff. The map identifies areas where Nitrogen, Phosphorous, and/or Pathogens could be mitigated in stormwater runoff in order to protect sensitive resources areas on the Cape. Existing roadways and future roadway development should consider treatment of these pollutants in the identified areas.

Because different resource areas are sensitive to certain kinds of pollutants, the table, below, outlines the resources areas mapped and their associated pollutants of concern. Buffer distances

around resource areas were chosen by considering where stormwater runoff from roads may impact sensitive natural habitats and are derived from TMDL considerations and the RPP. In general, buffers are required to protect surface water bodies from sedimentation, erosion, and pollution; they are also needed to maintain wildlife habitat. In WLA calculations used for both the Nitrogen and Pathogen TMDLs on Cape Cod, a 200 foot buffer was considered as the contributing area for stormwater runoff. The RPP designates buffer distances around Sensitive Natural Resource Areas (SNRA), where development should be located outside of these buffer zones. Buffers include a 300 foot buffer around ponds, a 350 foot buffer around certified vernal pools, and a 200 foot buffer around rivers.

FIGURE 3. Stormwater Treatment Areas



The following table shows the resource areas considered in Figure 3.

TABLE 1. Sensitive Resource Areas and Associated Pollutants of Concern

SENSITIVE RESOURCE AREA	NOTES	POLLUTANTS TO REDUCE
Watersheds requiring N removal	Indicates to what level watersheds must reduce current nitrogen loading	N
Impaired Waters	Impaired for pollutants (nutrients, metals, pesticides, solids, and pathogens) or impaired for pollution (e.g. low flow, habitat alteration, non-native species infestations). "Impaired" defined by Section 305 (b) and 303 (d) of the CWA.	P, N, Pathogens
Impaired Waters Buffer	300 foot buffer around impaired waters	P, N, Pathogens
Outstanding Resource Waters	Considered a "Critical Area" according to MA Stormwater Standards. Stormwater discharges to Outstanding Resource Waters shall be removed (and set back from the receiving water or wetland) and receive the highest and best practical method of treatment	N, P, Pathogens
WPAs & IWPAs	Considered a: "Critical Area" according to MA Stormwater Standards. Water Resource Area in the RPP which have additional considerations for maintenance of water quality "Significant Natural Resource Area" according to RPP	N, P, Pathogens
Coldwater Fisheries	200 foot buffer. Overall sensitive habitat that requires maintenance of cold temps and high dissolved oxygen.	P, N, Pathogens
National Heritage and Endangered Species Program (NHESP) Certified Vernal Pool buffers	350 foot buffer required per RPP. Considered a SNRA (per RPP). EPA recommends managing a 1000 foot radius area beyond the edge of a vernal pool basin as vernal pool upland habitat.	P, N
Ponds Buffer	300 feet	P, Pathogens
River Buffer	200 feet	P, N
MassDEP Wetland Areas	Considered a SNRA (per RPP).	N
NHESP Priority Habitats	Considered a SNRA (per RPP).	P, N, Pathogens
Freshwater Recharge Area	Considered a Water Resource Area in the RPP with additional considerations related to phosphorus loading	P, N, Pathogens
Potential Public Water Supply Area	Considered a SNRA (per RPP).	P, N, Pathogens

Climate Change Considerations in Stormwater Management

Recent storm records and predictions for storm activity in the coming years suggest that roadways in New England will trend towards more extreme events. Accordingly, Massachusetts transportation infrastructure should be designed to accommodate higher intensity storm events. The Massachusetts Climate Change Adaptation Report also cites evidence that by 2050, annual precipitation in Massachusetts may increase by 8%, with a winter increase of 16% (accompanied by a decrease in snow days and an increase in winter rain precipitation). These climate predictions suggest that future planning for stormwater management should consider increased volumes of water (and stormwater runoff) on Massachusetts roadways.

DESIGN CRITERIA FOR MANAGING STORMWATER VOLUME

First Flush

The Water Quality Volume (WQV) represents the runoff generated by a design depth of rainfall from a given drainage area. This provides a minimum quantity (ft^3) of water to capture and treat for the constituents of concern. To capture the full volume of each rain event would be costly and require large dedicated portions of land. In its essence, the goal of stormwater management is twofold and includes treating contaminated runoff and minimizing flooding issues for the majority of storm events. The WQV calculation ensures that water quality treatment is provided for the most contaminated runoff, or the "first flush," of each event. The first flush typically includes the most polluted runoff of an event as it re-suspends contaminants that have been gathering on impervious surfaces during dry periods. Therefore, guaranteeing the capture and treatment of this initial runoff stream is the most important consideration from a water quality standpoint.

As defined by the Massachusetts Stormwater Design Handbook, the required WQV for the below land use types equals 1.0" of runoff times the total impervious area.

- from a land use with a higher potential pollutant load;
- within an area with a rapid infiltration rate (greater than 2.4 inches per hour);
- within a Zone II or Interim Wellhead Protection Areas (IWPAs)
- near or to the following critical areas:
 - Outstanding Resource Waters
 - Special Resource Waters,
 - bathing beaches,
 - shellfish growing areas
 - cold-water fisheries.

The remaining land use types not listed here require a design depth of 0.5", but 1" is currently a recommended practice and will likely be the standard in the near future.

For the purposes of this report the WQV is calculated following Equation 1 and is defined below.

Equation 1: WQV Calculation

WQV = P * Rv * I * A

Where:

P = precipitation (in.)

Rv = unitless volumetric runoff coefficient

I = percent impervious cover draining to structure

A = contributing drainage area to BMP (acre)

Greater Design Flood Frequency

As discussed in the 2011 Massachusetts Climate Change Adaptation Report, addressing the resiliency and adaptability of infrastructure in the face of global climate change is of paramount concern. A 2010 study from the University of New Hampshire discussing trends in precipitation in the Northeastern United States indicates "that the occurrences of extreme precipitation events, and the intensity of rainfall, are increasing." The study shows that annual precipitation has increased since the late 1940's with the largest increases occurring in recent years. Researchers with the University of Massachusetts Boston Environmental, Earth and Ocean Science Department analyzed trends in precipitation from 1954 to 2008. Findings in the study strongly suggest the need for updating design storm estimates in Maine, New Hampshire and Massachusetts.

The table below is an excerpt from Chapter 8 of the Mass Highway Design Manual, 2006 Edition and shows the recommended design flood frequencies for drainage systems by highway functional class. With trends showing an increase in event intensity and frequency, consideration should be taken to use greater design flood frequency values in areas of increased hydroplaning risk. It is becoming increasing common, and generally recommended, to the 2015 NOAA Atlas 14 or the regularly updated Northeast Regional Climate Center estimates.

FIGURE 4. Recommended Design Flood Frequency (excerpt from MassHighway Design Manual)

Highway Functional Class	Urban/Rural	Type of Installation: Cross Culverts	Type of Installation: Storm Drain System[2]	Type of Installation: Open Channels[3]
Interstate/Freeway/Expressway	Both	50-yr	10-yr[4]	50-yr
Arterial	Urban	50-yr	10-yr[4]	50-yr
	Rural	50-yr	10-yr[4]	50-yr
Collectors/Local	Urban	25-yr[5]	5-yr	25-yr[5]
	Rural	10 or 25-yr	2 or 5-yr	10 or 25-yr

1. The values in the table are typical ranges. The selected value for a project is based on an assessment of the likely damage of a given flow and the costs of the drainage facility.
2. This includes pavement drainage design.
3. This includes any culverts which pass under intersecting roads, driveways, or median crossings.
4. Use a 50-yr frequency at underpasses or depressed sections where ponded water can only be removed through the storm drain system.
5. The selected frequency depends on the anticipated watershed development and potential property damage.

Source: HEC #1, March, 1969. Design of Highway Pavements, pp. 12-5 to 12-6. Note: HEC #12 — Revised, March, 1984.

Note: 100-year requirements must be checked if the proposed highway is in an established regulatory floodway or floodplain, or resource area is defined by the April, 1983 revisions to Ch. 131 MGL, Section 40. See Section 10.1.2.

Pavement Cross Slope and Expanded Shoulder

Providing adequate cross slope on a roadway surface and expanding the road shoulder are effective ways to manage runoff. Assuming shoulders are properly sloped to drain away from pavement, both help convey design runoff from driving lanes. Because adjusting roadway cross slopes is expensive and results in significant disruption to vehicular travel, such an approach would be considered only if a segment of roadway was already slated for reconstruction and resources like historic character and critical vegetation would not be damaged with inclusion of an expanded shoulder.

Minimize Drainage Path Lengths

Long downhill grades where water is channelized through raised shoulders or berms increasestormwater velocity and quantity until release points are reached, such as a curb cut or a curve transition where concentrated flow turns to sheet flow across the roadway. As drainage path lengths increase, the effects of channelization are compounded. By minimizing drainage path lengths through frequent curb cuts; runoff velocity, volume, and associated ponding are minimized. Catch basins, while a useful management tool for overall runoff reduction, should not be relied upon to minimize drainage path lengths. Due to improper placement, clogging and infrequent maintenance, catch basins are often unable to capture design volumes on busy roadways.

Curbing and Berming

Curbing is primarily used at the outside edge of pavement to contain surface runoff within the roadway and away from adjacent properties. Secondary and tertiary benefits of curbing include the prevention of slope erosion, roadside delineation, and pedestrian sidewalk protection.

In many instances, preventing runoff from exiting the road surface is an important goal when large quantities of runoff have the potential to affect adjacent property owners and protected natural resources. However, curbing and berming may be unnecessary in areas where there are sufficient median and adjacent rights of way to capture roadway runoff. Where there is sufficient land area to capture roadway runoff excess curbing and berming may be an unnecessary preventative measure and counterproductive when attempting to minimize the potential for hydroplaning. Intermittent or complete removal of curbing and berms in applicable areas will reduce runoff build up and minimize drainage path lengths.

When combined with a properly designed cross slope, the complete removal of curbing and berms will promote country drainage and have minimal risk for slope erosion. Where curbing and berming must remain, drainage pathways should still be minimized by frequent curb cuts. Curb cuts capturing runoff from large drainage areas and long drainage path lengths must account for the increased energy and velocity of runoff to prevent erosion. This may be accomplished through a variety of energy dissipaters such as vegetated filter strips, riprap aprons and riprap outlet basins. Curb cuts capturing runoff within nitrogen sensitive watersheds could utilize specific stormwater controls that address nutrient reduction. The targeted controls should be placed down gradient of energy dissipaters to accept a more controlled flow.

DESIGN CRITERIA FOR WATER QUALITY

Pollutants in stormwater fall into two groups: suspended solids and dissolved pollutants. Particle sizes greater than 0.45 micron are considered suspended solids. Pretreatment devices, such as a sediment forebay or oil grit separator, are ordinarily designed to remove suspended solids that have larger particle sizes. Dissolved solids, however, are removed by treatment practices that rely on settling (e.g. extended dry detention basins and wet basins) or filtration (e.g. sand filters and filtering bioretention areas).

If stormwater runoff will affect surface water that is subject to a TMDL, proponents must design, construct, operate and maintain a stormwater management system that is consistent with the TMDL. Currently, there are TMDLs for both nitrogen and bacteria on Cape Cod.

Treating Nitrogen

There are a growing number of stormwater management technologies which effectively remove nitrogen from stormwater. Stormwater BMPs equipped with vegetation can remove nitrogen through nutrient uptake, while other BMPs create an anoxic, or oxygen free, environment for denitrifying bacteria to convert nitrogen in stormwater to inert nitrogen gas. BMPs that can effectively remove nitrogen include bioretention systems, tree box filters, sub-surface constructed wetlands and retention ponds. Nitrogen removal efficiencies of chosen BMPs can be found in Table 4.

Treating Bacteria

In shellfish growing areas and public swimming beaches, bacterial contamination is of concern. Therefore, designers should evaluate BMPs for their ability to capture bacteria or limit their growth. BMP technologies that retain water under conditions that promote bacteria growth (such as enclosed spaces that can become "septic" during extended no flow periods) should be avoided in these areas. For example, identification and remediation of dry weather bacteria sources is usually more straightforward and successful than tracking and eliminating wet weather sources. Only segments that remain impaired during wet weather should be evaluated for stormwater BMP implementation opportunities. Bacterial removal efficiencies for some chosen BMPs can be found in Table 4.

Environmentally-sensitive Roadway Design

Low impact development (LID) techniques are innovative stormwater management systems that are modeled after natural hydrologic features. Environmentally sensitive roadway design involves incorporating LID techniques to prevent the generation of stormwater and non-point source pollution by reducing impervious surfaces, disconnecting flow paths, treating stormwater at its source, maximizing open space, minimizing disturbance, protecting natural features and processes, and/or enhancing wildlife habitat.

BEST MANAGEMENT PRACTICES FOR ROADWAYS

Best management practices (BMPs) are control measures to limit untreated, polluted stormwater runoff from reaching waterbodies. BMPs can be categorized in to two categories: structural and non-structural BMPs. Structural BMPs are physical interventions in the landscape, while non-structural BMPs are administrative measures/requirements, such as trainings and operating procedures.

Structural BMPs

Structural BMPs are physical interventions for stormwater management that can be used alone or together to convey, treat, and/or infiltrate stormwater runoff. Structural BMPs can be classified in one or several of the following categories:

- Pretreatment
- Treatment
- Conveyance
- Infiltration
- Other

PRETREATMENT

Pretreatment BMPs are typically the first BMPs in a treatment train and typically remove coarse sediments that can clog other BMPs. The settling process generates sediment that must be routinely removed. Maintenance is especially critical for pretreatment BMPs, because they receive stormwater containing the greatest concentrations of suspended solids during the first flush. Pretreatment BMPs can be configured as on-line or off-line devices. On-line systems are designed to treat the entire WQV. Off-line practices are typically designed to receive a specified discharge rate or volume. A flow diversion structure or flow splitter is used to divert the design flow to the off-line practice.

- Deep Sump Catch Basins
- Oil Grit Separators
- Proprietary Separators
- Sediment Forebays
- Vegetated Filter Strips

TREATMENT

Stormwater Treatment Basins provide peak rate attenuation by detaining stormwater and settling out suspended solids. The basins that are most effective at removing pollutants have either a permanent pool of water or a combination of a permanent pool and extended detention, and some elements of a shallow marsh. Stormwater basins include:

- Extended Dry Basins (Detention Ponds)
- Wet Basins (Retention Ponds)

Constructed stormwater wetlands are designed to maximize the removal of pollutants from stormwater runoff through wetland vegetation uptake, retention and settling. Gravel wetlands, however, remove pollutants by filtering stormwater through a gravel substrate.

- Constructed Stormwater Wetland
- Gravel Wetland

Other filtration BMPs include:

- Filtering Bioretention Areas and Rain Gardens
- Proprietary Media Filter
- Sand Filters/Organic Filters
- Treebox Filter

CONVEYANCE

These BMPs collect and transport stormwater, usually to other BMPs for treatment and/or infiltration. Conveyance BMPs may also treat runoff through infiltration, filtration, or temporary storage. For example, a vegetated swale functions both as a runoff conveyance channel and the vegetation prevents erosion, filters sediment, and provides some nutrient uptake benefits.

- Drainage Channels
- Grass Channels
- Water Quality Swales
 - Dry
 - Wet

INFILTRATION

Infiltration techniques reduce the amount of surface flow and direct the water back into the ground.

- Exfiltrating Bioretention Areas and Rain Gardens
- Dry Wells
- Infiltration Basins
- Infiltration Trenches
- Leaching Catch Basins
- Subsurface Structures

OTHER

- Dry Detention Basins
- Green Roofs
- Porous Pavement
- Rain Barrels and Cisterns

BMP accessories are devices that enable BMPs to operate as designed. BMP accessories include the following:

- Check Dams
- Level Spreaders
- Outlet Structures
- Catch Basin Inserts

TREATMENT TRAINS

A BMP "treatment train" incorporates several stormwater treatment mechanisms in sequence to enhance the treatment of runoff. A series, rather than using a single method of treatment, improves the levels and reliability of pollutant removal. The effective life of a BMP can be extended by combining it with pretreatment BMPs, such as a vegetated filter strip or sediment forebay, to remove sediment prior to treatment in the downstream "units." Sequencing BMPs can also reduce the potential for re-suspension of settled sediments by reducing flow energy levels or providing longer flow paths for runoff.

Examples of treatment trains:

- A sediment forebay discharging to a wet basin flowing into a constructed stormwater wetland
- A water quality swale flowing into a wet basin or a constructed stormwater wetland
- An oil grit separator connected to a sand or organic filter
- A sediment forebay discharging to an extended dry detention basin connected to a sand filter
- A water quality swale discharging to a vegetated filter strip connected to an infiltration trench

Non-Structural BMPs

Non-structural BMPs are policies, educational efforts, and housekeeping efforts that can help mitigate stormwater runoff. Because nonstructural practices can reduce stormwater pollutant loads and quantities, the size and expense of structural BMPs can be reduced, thereby affording substantial cost savings. Below are two BMPs that can be used to reduce the amount of contaminants in roadway stormwater runoff.

STREET SWEEPING

Street sweeping programs have the capacity to be effective in removing pollutants, primarily total suspended solids (TSS), from stormwater.

Three factors that can have an influence on the effectiveness of a street sweeping program are:

(1) Access - Studies have shown that up to 95% of the solids on a paved surface accumulate within 40 inches of the curb, regardless of land use. Those responsible for stormwater maintenance have the ability to impose parking regulations to facilitate proper sweeping so that sweepers can get as close to curbs as possible.

(2) Type of sweeper - There are three types of sweepers: Mechanical, Regenerative Air, and Vacuum Filter. Each has a different ability to remove TSS.

- Mechanical: use brooms or rotary brushes to scour the pavement. They are not effective at removing TSS (0% to 20% TSS removal).
- Regenerative Air: blow air onto the road or parking lot surface, causing fine particles to rise where they are vacuumed. Regenerative air sweepers may blow particulates off the vacuumed portion of the roadway or parking lot, where they contaminate stormwater when it rains.
- Vacuum filter: Two types, wet and dry. The dry type uses a broom in combination with the vacuum. The wet type uses water for dust suppression. Research indicates vacuum sweepers are highly effective in removing TSS.

Regardless of the type chosen, the efficiency of street sweeping is increased when sweepers are operated in tandem.

(3) Frequency of sweeping - TSS removal efficiency is determined based on annual loading rates. If a road were swept only once a year with a sweeper that is 100% efficient, it would remove only a small fraction of the annual TSS load. Many studies and reports suggest that optimum pollutant removal occurs when surfaces are swept every two weeks.

TABLE 2. TSS Removal Credits for Street Sweeping

TSS REMOVAL RATE	HIGH EFFICIENCY VACUUM SWEEPER – FREQUENCY OF SWEEPING	REGENERATIVE AIR SWEEPER – FREQUENCY OF SWEEPING	MECHANICAL SWEEPER (ROTARY BROOM)
10%	Monthly Average, with sweeping scheduled primarily in spring and fall.	Every 2 Weeks Average, with sweeping scheduled primarily in spring and fall.	Weekly Average, with sweeping scheduled primarily in spring and fall.
5%	Quarterly Average, with sweeping scheduled primarily in spring and fall.	Quarterly Average, with sweeping scheduled primarily in spring and fall.	Monthly Average, with sweeping scheduled primarily in spring and fall.
0%	Less than above	Less than above	Less than above

It has been found that street sweeping programs may NOT be effective due to the following:

- The period immediately following winter snowmelt, when road sand and other accumulated sediment and debris is washed off, is frequently missed by street sweeping programs.
- Larger particles of street dirt may prevent smaller particles from being collected.
- The entire width of roadway may not be swept.

- Sweepers may be driven too quickly to achieve maximum efficiency.
- Land surfaces along the paved surfaces may not be entirely stabilized.

Successful street sweeping programs should consider factors such as whether road and parking lot shoulders are stabilized, the speed at which the sweepers will need to be driven (safety factor such as along a highway), whether access is available to the curb (whether vehicles parked along the curb line will preclude sweeping of the curb line), the type of sweepers, and whether the sweepers will be operated in tandem. Municipalities or private developers that are planning to purchase a new street sweeper should consider vacuum sweepers, because they are the most consistently effective.

ROAD SALTING

The application and storage of deicing materials, most commonly salts such as sodium chloride, can lead to water quality problems for surrounding areas. Salts, gravel, sand, and other materials are applied to highways and roads to reduce the amount of ice or to provide added traction during winter storm events. Salts lower the melting point of ice, allowing roadways to stay free of ice buildup during cold winters. Sand and gravel increase traction on the road, making travel safer.

As snow melts, road salt, sand, litter, and other pollutants are transported into surface water or through the soil where they may eventually reach the groundwater. Road salt and other pollutants can contaminate water supplies and may be toxic to aquatic life. Sand washed into waterbodies can create sand bars or fill in wetlands and ponds, impacting aquatic life, causing flooding, and affecting our use of these resources.

To prevent increased pollutant concentrations in stormwater discharges, the amount of road salt applied should be reduced. Calibration devices for spreaders in trucks aid maintenance workers in the proper application of road salts, so the amount of salt applied could be varied to reflect site-specific characteristics such as road width and design, traffic concentration, and proximity to surface waters. Alternative materials, such as sand or gravel, calcium chloride, and calcium magnesium acetate may be used in especially sensitive areas.

BMPs for Cape Roadways

The following BMPs are discussed in more detail, as they are suitable for construction on the Cape considering the Cape's permeable soils and more rural, semi-urban landscape.

- Porous pavement (other)
- Leaching Catch Basins (infiltration)/ Infiltration Basins (infiltration)
- Sub-surface Sediment Chambers (pretreatment + infiltration)

- Retention Pond (treatment)
- Bioretention (treatment)
- Advanced Bioretention (treatment)
- Water Quality Swales (conveyance, treatment, infiltration)
- Constructed Stormwater Wetlands (treatment)

POROUS PAVEMENT



FIGURE 5. Porous Pavement adjacent to traditional impervious asphalt pavement (foreground)

(Source: Virginia Asphalt Association)

Porous pavement, also known as pervious, permeable, or open-graded asphalt, is a standard hot-mix asphalt with reduced sand or fines allowing stormwater to infiltrate through a permeable surface. The reduced fines provide air pockets in the pavement creating interconnected void space allowing stormwater to flow through the pavement and into a sand and crushed stone aggregate bedding layer base supporting the pavement. The sub-base provides storage and runoff treatment without requiring additional land area to do so. Porous pavement over an aggregate storage bed will reduce stormwater runoff volume, and pollutants. When properly constructed, porous pavement is a viable alternative to traditional pavement especially in areas where green space and/or additional land area to capture and treat stormwater is limited. Porous pavement may also be incorporated into sidewalks and bike lanes to further reduce site runoff.

Porous pavement has been shown to remove high levels of TSS and petroleum hydrocarbons. When designed correctly, porous pavements may also reduce bacteria contamination.

LEACHING CATCH BASINS/INFILTRATION BASINS

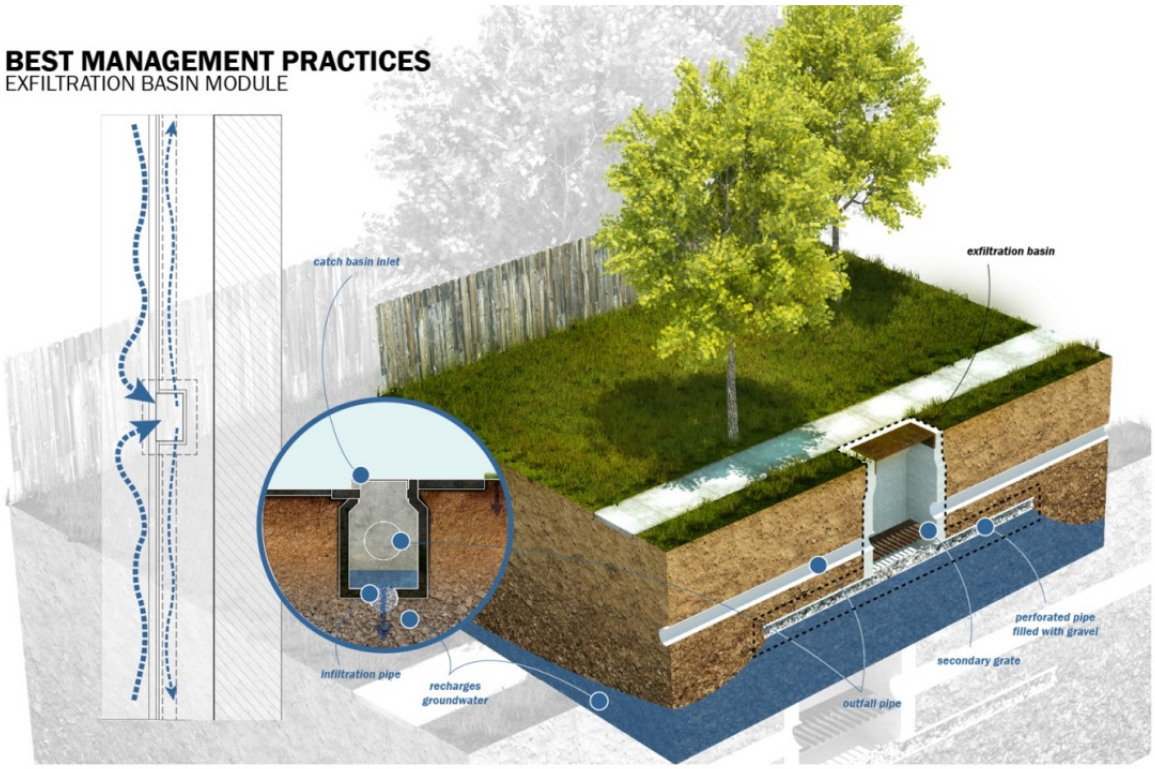


FIGURE 6. Leaching Catch Basin

(Source: Waggonner and Ball Architects)

A leaching catch basin is similar to a traditional catch basin with the added ability to permit the infiltration of captured runoff. Leaching basins are often installed in series with a deep sump catch basin that provides pretreatment. Because of this pretreatment, the catch basin/leaching basin combination is preferable to the leaching catch basin as a higher removal of TSS may be achieved while also extending the life and minimizing maintenance on the leaching catch basin. Leaching catch basins and leaching basins should only be used in areas with highly permeable soils, making these basins a popular stormwater control throughout the Cape.

Leaching catch basins, in series with pre-treatment catch basins, achieve excellent TSS removal in addition to constituents that sorb to fine particulates including petroleum hydrocarbons and metals.

SUB-SURFACE SEDIMENT CHAMBERS/UNDERGROUND SAND FILTERS



FIGURE 7. Sub-surface Treatment Chambers

(Source: Lindsay Cook, Cape Cod Conservation District Intern)

Sub-surface sediment chambers function similarly to surface sedimentation systems. Sediment trapping systems remove pollutants (mainly particulates) from stormwater runoff through a pretreatment sedimentation area followed by an outflow mechanism returning treated flow to a stormwater conveyance system.

In a treatment train, the outflow from the sedimentation area can be followed by an infiltration bed containing filter media (typically sand, soil, gravel or a combination of media). This infiltration bed removes fines and the pollutants sorbed, or attached, to these particulates. Various contaminants including, but not limited to metals, petroleum hydrocarbons and bacteria may sorb to fines allowing infiltration systems to achieve removal efficiencies in these categories though the physical process of filtration.

RETENTION PONDS



FIGURE 8. Retention Pond

(Source: U.S. EPA)

Retention ponds, or "wet ponds," are a widely used conventional stormwater management tool. They are designed to retain a permanent pool of runoff allowing for continuous water quality treatment. Unlike detention basins, or dry basins, which detain runoff only for a limited period of time, retention ponds may be retrofitted from a flood control measure to a water quality treatment system through the installation of additional outlets. As retention ponds contain an active aquatic ecosystem frequent maintenance is required to prevent the buildup and export of contaminants.

Limitations include standing water increasing the risk of drowning and creating mosquito habitat. As mentioned above, retention ponds also may contain excess nutrients that, without proper maintenance, may lead to harmful algal blooms.

Retention ponds remove TSS, petroleum hydrocarbons, nitrogen (with proper maintenance), metals and in some cases bacteria.

BIORETENTION

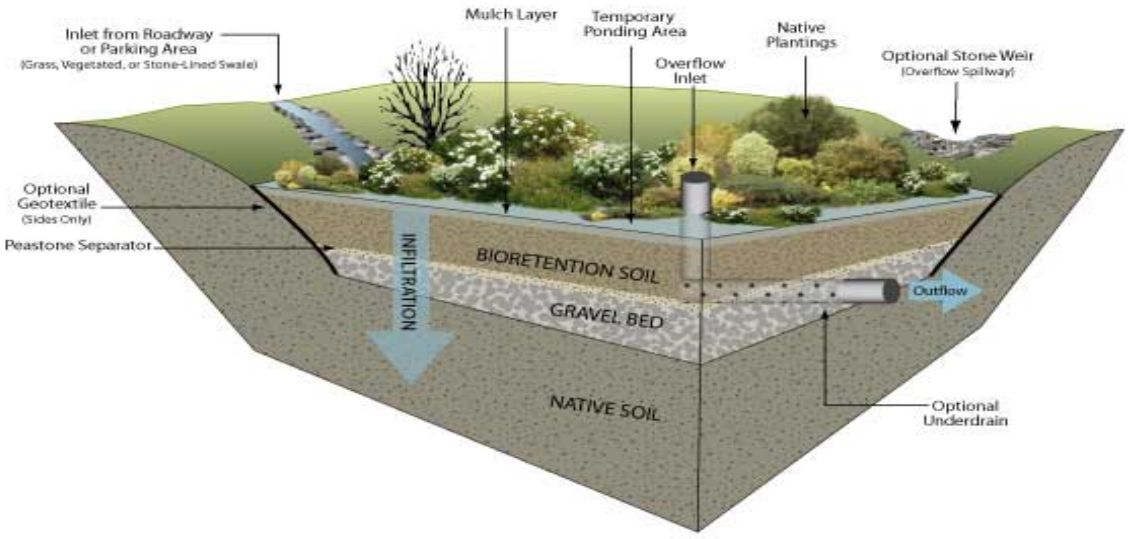


FIGURE 9. Bioretention

(Source: Douglas County Environmental Services)

Bioretention is a method of treating stormwater by ponding water in shallow depressions underlain by a sandy engineered soil media through which most of the runoff passes.

Bioretention systems can easily be incorporated into the landscape to address and maintain many of the natural hydrologic functions. Pollutants within these systems are removed through both chemical and physical means within the bioretention soil mix. Bioretention systems also encourage biological treatment of nutrients, such as nitrogen, through nutrient uptake by vegetation within the system. Bioretention tends to work best in sandy soils, such as are present in many areas of Cape Cod.

Properly designed bioretention systems achieve excellent removal efficiencies for a wide range of pollutants including TSS, petroleum hydrocarbons, nitrogen, metals, phosphorus and bacteria. Typical removal efficiencies are shown in Table 4.

ADVANCED BIORETENTION

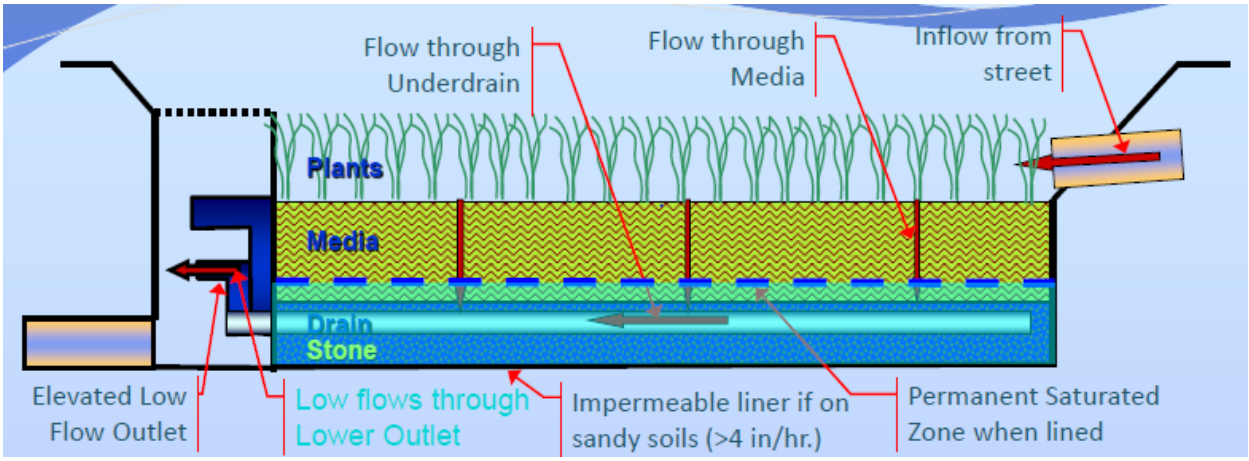


FIGURE 10. Advanced Bioretention

(Source: Washington Stormwater Center)

Advanced bioretention systems provide additional treatment through increased travel and residence time of stormwater. As runoff infiltrates vertically through the soil media, an impermeable liner intercepts and redirects the flow horizontally. This horizontal flow increases contact between runoff, bioretention soil media and root vegetation thereby attaining a reduction in nutrients and various other contaminants greater than traditional bioretention systems. Advanced systems are often lined at the bottom of excavation preventing infiltration and rerouting water once again on a horizontal flow path prior to discharge.

Other modifications to bioretention systems aimed at improving performance include adding supplements to the soil media. Additives such as activated charcoal, sawdust and shredded paper have been shown to improve removal of certain constituents from stormwater runoff. Another approach employs modifications to the configuration of the bioretention system to retain a portion of the accumulated stormwater. This internal water storage design has been shown to reduce soluble nitrogen levels by inducing an anaerobic condition within the bioretention facility itself. Research advances in bioretention system design are continuing to emerge, with promising new methods of increasing pollutant removal.

WATER QUALITY SWALES



FIGURE 11. Water Quality Swales

(Source: Washington Stormwater Center)

Water quality swales are channels providing conveyance, water quality treatment, and flow attenuation of stormwater runoff. Water Quality Swales provide pollutant removal through vegetative filtering, sedimentation, biological uptake, and infiltration into the underlying soil media. Both wet and dry water quality swales can be implemented with the appropriate type being dependent upon site soils, topography, and drainage characteristics. Water quality swale stormwater practices work best with well-drained soils that encourage infiltration as part of the water quality treatment approach. Recommended cross section of water quality swales includes a ¾ - 1" stone sub base covered with Type A native soils and vegetation.

A variety of shrubs, grasses, and ground covers are acceptable vegetation in both sun and shade conditions for the above mentioned stormwater technologies. Vegetation should designed to maximize pollutant removal and contribute to native ecological systems and selected based on its tolerance to flooding and its ability to survive with little or no fertilizers and pesticides. This vegetation should preferably be native, but at very least not be invasive.

Roadside water quality swales paired with country drainage provide increased water quality benefits, mimic the natural landscape, are highly compatible with LID design, have minimal impact on wildlife and reduce driving hazards by keeping stormwater flows off of the roadway surface.

Water quality swales achieve adequate removal efficiencies for TSS, petroleum hydrocarbons, and metals. Typical removal efficiencies are shown in Table 4.

CONSTRUCTED STORMWATER WETLANDS

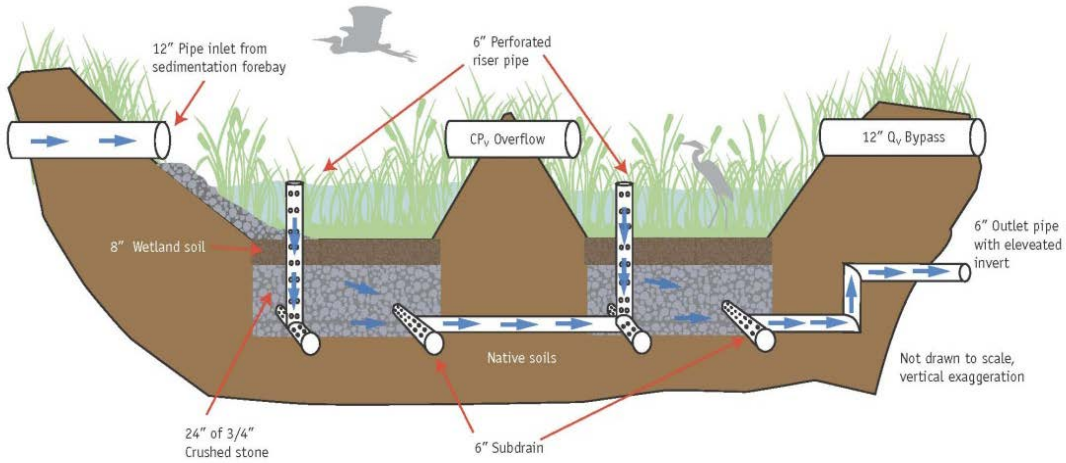


FIGURE 12. Constructed Stormwater Wetlands

(Source: University of Idaho)

Constructed wetlands are intended to simulate the functions of natural wetlands by utilizing vegetation, soils, and microbial activity. Constructed wetlands are typically separated into surface flow wetlands and subsurface flow wetlands. These wetland systems have the ability to treat wastewater from a range of pollutant sources, utilize few to no chemicals, have a lower carbon footprint and may be less expensive in both capital costs and operation and maintenance than conventional treatment options.

The subsurface gravel wetland is designed as a series of flow-through treatment cells, preceded by a sedimentation basin. It is designed to attenuate peak flows and provide subsurface anaerobic treatment. The subdrains distribute the incoming flow, which then passes through the gravel substrate, and then to the opposite subdrains, into the adjacent cell, and then exits the treatment system. In the event of a high intensity event, the WQV is stored above the wetlands, and drains into the perforated riser on one end of the wetland, and into the substrate. Biological treatment occurs through plant uptake and soil microorganism activities. This is followed by physical-chemical treatment within the soil including filtering and absorption with organic matter and mineral complexes. Sub-surface gravel wetlands consistently achieve the highest removal efficiencies of any stormwater management system for a wide range of pollutants including TSS, petroleum hydrocarbons, nitrogen, metals, phosphorus and bacteria. Typical removal efficiencies are shown in Table 4.

MAINTENANCE OF PREFERRED BMPS

It is important to note that these systems may require different maintenance and ongoing care regimes than what has been traditionally provided for stormwater management and landscape systems in the past. However, many of these systems do not require more time or cost intensive care than typical regimes; the care is instead is just a different type of maintenance practice and these learning hurdles need to be overcome. For example, weekly mowing of traditional grass strips between roadways and sidewalks is both cost and time and fossil fuel resource intensive. In lieu of mown grass strips, Water Quality Swales could instead be constructed to provide contaminant removal benefits in addition to desired green aesthetics. Water Quality Swales may require less overall mowing than traditional grass strips, however, trash may need to be removed in monthly intervals. Overall, the amount of maintenance may be the same or less, but the ongoing care practices are different than what road maintenance crews may be used to. Introduction of preferred BMPs should be accompanied by an educational program that emphasizes how maintenance practices are not more intensive, just different, and educates maintenance personnel to ensure long-term maintenance adjustment to provide functional systems.

Below, a typical maintenance summary is provided for the vegetated systems described in the previous section.

Year 1 & 2- Establishment

Just like any landscape installation, correct moisture levels following construction are essential to plant survival. The first ninety (90) days after planting is the critical time for watering. Young plants require heavy watering to establish. This is the same maintenance as required for traditional roadway edges such as mown grass strips.

The plants in a vegetated stormwater system need to be monitored to make sure they become established. It is suggested that this be specified as part of the original construction contract. A two year maintenance period is suggested to be added onto the construction contract to ensure plant survival. Monitoring points should be set up to photograph and document progress of re-vegetation at 3 month intervals. The maintenance contractor would monitor and water the plants, be responsible for replacing any plants that have died and would control weeds when needed.

Throughout the establishment phase it may be necessary to review individual species tolerance. Some planted species may need to be replaced with species that are performing well. A small allowance should be left in the project budget to perform adjust the species as needed during the 2 year establishment phase if needed.

During the 2 year establishment phase, it is suggested that the following maintenance procedures be put in place as part of the original construction contract:

First 90 days, Bi-Weekly:

1. Weed

2. Water as needed

3. Check for and fix erosion

4. Inspection for good general appearance of area/gardens, remove trash as needed

Rest of 2 year Establishment Period, Monthly:

1. Regularly inspect for signs of erosion, obstructions, and unhealthy vegetation.

2. Remove weeds and invasive plants.

3. Remove any trash that has washed into the vegetation areas or the inlet channels or pipes.

4. Check the facility a few days after a rain storm to observe drainage and infiltration as required.

Rest of 2 year Establishment Period Seasonally (Spring and Fall):

1. Replace mulch and finish surfaces where needed

2. Plant/replant as needed. Adjust replacement species if required.

3. Scratch surface to prevent "crust"

4. Check pH; adjust as indicated

Once the vegetated systems are established during the maintenance contract, the ongoing maintenance required can actually be less than a typical mown area. The key is that it is a different kind of maintenance that need to be performed by trained personnel.

Ongoing Maintenance After Establishment Phase

The below seasonal maintenance schedule reflects the maintenance needed after the two year establishment period. Bi-weekly mowing would NOT be required unless grass species are specified as part of a mown Water Quality Swale. Water Quality Swales may require bi-weekly mowing (just like regular grass) in addition to the schedule noted below. Other than

the necessary sediment and debris removal 4x per year, the maintenance required would be the same as a mown lawn strip.

TABLE 3. Recommended Time Frames for Typical Maintenance of Vegetated Stormwater BMPs

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Post Establishment:												
Remove sediment, leaves, debris and weeds		X			X			X			X	
Pruning/Cutback		X									X	

TABLE 4. Comparison of Selected BMPs

BMP	SOURCE	COST/METRIC	% POLLUTANT REMOVAL						MAINTENANCE NOTES
			TSS	N	P	METALS	ORGANIC C	OTHER % REMOVAL	
Sub surface sediment chambers/Underground sand filters	EPA (1999)	$6,600 to $18,500 / acre drainage area	70 %	46% (TKN)	33% (Total P)	45%	48%	76% Fecal Coliform	Routine inspections (after major storms) that include trash and debris removal. Lifespan 3-5 yrs. before corrective maintenance red: removal and replacement of top layers of sand, gravel, or filter fabric.
	NPREPD (2007)		86 %	32% (Total N)	59% (Total P)	37% Cu; 87% Zn		37% Bacteria	
Retention pond (Wet Detention Ponds)	EPA (1999)	$0.50 - $1.00/cubic ft.	50-90 %	40-80% (soluble nutrients)	30-90% (Total P)	40-80%	20-40%	40-90% Pathogens (source: MA Stormwater Handbook)	Routine inspections (after major storms) that include trash and debris removal. Maintenance includes repairs to embankment, sediment removal, and control of algae, insects, and odors.
	NPREPD (2007)		80 %	31% (Total N)	52% (Total P)	57%(Cu); 64% (Zn)		70% Bacteria	
Bioretention	EPA (1999)	$1.25/sq. ft. (installation cost)	90 %	68-80% (TKN)	70-83% (Total P)	93-98%	90%	90% Bacteria	Biannual inspection of trees and shrubs, pruning and weeding, alkaline application.
	NPREPD (2007)		59 %	46% (Total N)	5% (Total P)	81%Cu ;79%Zn			
Water Quality	EPA	$8.50 -$50.00/	81	38% (Nitrate)	9% (Total P)	42 -	67%	62%	Periodic mowing, weed control,

Swales	(1999)	linear ft. (capital cost)	%			71%		Hydrocarbons	watering, reseeding of bare areas, mulch and fertilizer application, clearing of debris and sediment. Inspect four times per year. Indefinite lifespan, if properly maintained.
	NPREPD (2007)		81 %	39% (Nitrate&Nitrite)	24% (Total P)	65% Cu; 71%Zn			
Porous Pavement	EPA (1999)	$0.50 to $1.00 / sq. ft. (installation cost)	94 %	43% (Nutrients)		76-93%	N/A	N/A	Vacuum sweeping and high-pressure hosing at least four times a year. Annual inspections. Longer lifespan than regular pavement: 30 yr. lifespan in Northern climates due to reduced freeze/thaw stress.
	NPREPD (2007)		89 %	42% (Total N)	65% (Total P)	86% Cu; 66%Zn			
Constructed Stormwater Wetlands	EPA (1999)	$26,000 - $55,000 per acre (construction cost)	67 %	28% (Total N)	49% (Total P)	36 - 62%	34%	77% Bacteria; 87% Hydrocarbons	Replanting, sediment removal, plant harvesting. Biannual inspections for first few years, annual inspections thereafter. >20 yr. lifespan
	NPREPD (2007)		72 %	24% (Total N)	48% (Total P)	47% Cu; 42%Zn		78% Bacteria	

REGULATIONS AND PERMIT CONDITIONS

Massachusetts Stormwater Management Standards

Many transportation projects in Massachusetts require adherence to MassDEP's Massachusetts Stormwater Management Standards. Specifically, the standards apply to transportation projects that require either a Massachusetts wetlands permit and/or require a Water Quality Certification. Through the State's Water Quality Certification, the general permit for municipal separate storm sewer systems (MS4) requires compliance with the Stormwater Management Standards. As an MS4 permit operator, the Massachusetts Department of Transportation (MassDOT) must abide by the Massachusetts Stormwater Management Standards.

The Massachusetts Stormwater Standards are comprised of 10 standards that:

1. Prohibit untreated stormwater discharges
2. Ensure peak discharge rates do not increase with development
3. Encourage infiltration by ensuring annual recharge does not decrease with development
4. Require stormwater management systems are designed to remove 80% of the average annual post-construction load of TSS.
 a. A long-term pollution prevention plan is implemented and maintained
 b. BMPs are sized to capture required volume (per Massachusetts Stormwater Handbook)
 c. Pretreatment is provided (per Massachusetts Stormwater Handbook)
5. Eliminate or reduce stormwater discharges to the maximum extent practicable (MEP) for land uses with higher potential pollutant loads.
6. Require the use of the specific source control and pollution prevention measures for discharges in Zone IIs, IWPAs, and near/to "critical areas" (defined below).
7. Require a redevelopment project to meet some of the Stormwater Management Standards and improve existing conditions. Existing stormwater discharges shall comply with Standard 1 only to the MEP.
8. Develop and implement a construction period erosion, sedimentation, and pollution prevention plan.

9. Develop and implement a long-term operation and maintenance to ensure that stormwater management systems function as designed.

10. Prohibit all illicit discharges to the stormwater management system.

Demonstrating compliance with the Stormwater Management Standards to the MEP requires:

1. Making all reasonable efforts to meet each of the Standards

2. Conducting a complete evaluation of possible stormwater management measures (e.g. LID techniques that minimize land disturbance and impervious surfaces, BMPs, pollution prevention, erosion and sedimentation control, and proper operation and maintenance of stormwater BMPs)

3. That if full compliance with the Standards cannot be achieved, they are implementing the highest practicable level of stormwater management.

CRITICAL AREAS

According to Standard 6, specific source controls and pollution prevention measures are required for "critical areas," as defined in MassDEP's Stormwater Management Handbook. MassDOT needs to identify discharges to the following resources areas as a priority and indicate in their stormwater management plan how storm water controls will be implemented. The "Critical areas" defined in MassDEP's Stormwater Management Handbook, with associated references to the Code of Massachusetts Regulations (CMR), are as follows:

- Outstanding Resources Waters (314 CMR 4.00)
- Special Resources Waters (314 CMR 4.00)
- Recharge areas for public water supplies as defined in 310 CMR 22.02 (Zone Is, Zone IIs and IWPAs for groundwater sources and Zone As for surface water sources)
- Bathing beaches (105 CMR 445.000)
- Cold-water fisheries (310 CMR 10.04 and 314 CMR 9.02)
- Shellfish growing areas (310 CMR 10.04 and 314 CMR 9.02)

Designers of roadway improvements should recognize the special nature of "Critical Areas" (especially surface water drinking water reservoirs and other ORWs). In general, roadway improvements in these areas warrant additional efforts to protect water quality than may apply in other less sensitive areas.

Certain BMP design considerations are important to ensuring adequate performance in critical resource areas. The MassDEP Stormwater Management Policy uses TSS removal as an indicator for BMP performance. In some critical areas, however, TSS may not be the only parameter (or even the primary parameter) of concern. For example:

In shellfish growing areas and public swimming beaches, bacterial contamination is of concern. Therefore, designers should evaluate BMPs for their ability to capture bacteria or limit their growth. BMP technologies that retain water under conditions that promote bacteria growth (such as enclosed spaces that can become "septic" during extended no flow periods) should be avoided in these areas.

In cold water fisheries, water temperature is a critical parameter. Therefore, if a BMP discharges directly to temperature sensitive waters, the BMP should not retain water in such a manner that raises its temperature (as may occur in a shallow wet pond, for instance). Alternatively, BMPs can sometimes be designed to account for the temperature effects; for example, in a deeper wet pond, water can be discharged from lower levels of the pond, or re-introduced to the downstream resource area through groundwater recharge.

MASSHIGHWAY STORMWATER HANDBOOK

MassDEP and MassHighway collaborated on the MassHighway Stormwater Handbook, which provides guidance on developing storm water management strategies for highway projects in order to comply with the Massachusetts Stormwater Management Standards. The handbook describes how to determine whether the MassDEP Stormwater Management Policy applies to a particular project and how standards may apply to particular projects. The handbook also addresses design strategies that may facilitate compliance, and source control measures for controlling stormwater pollutant loads from stormwater runoff. Also provided is a process for screening and selecting BMPs for roadway improvement projects that meet the objectives of the MassDEP Stormwater Management Policy. The handbook is primarily intended for roadway designers, public works personnel, and other persons involved in the design, permitting, review, and implementation of highway and bridge improvement projects in Massachusetts.

MassDOT MS4 Permit

Phase II of EPA's National Pollutant Discharge Elimination System (NPDES) program applies to both roadway construction and existing roadways. Construction projects exceeding one acre of soil disturbance require filing a Notice of Intent with EPA under the NPDES Construction General Permit. NPDES Phase II Rule also applies to MassHighway, as it considers MassDOT to be an operator of an MS4. MassDOT currently holds an EPA NPDES Phase II Small MS4 General Permit (Permit #: MA043025), with a new MassDOT MS4 permit to be issued in the near future. The MS4 general permit requires MassDOT to:

- Develop and implement a storm water management program to reduce discharge of pollutants to the MEP.
- Develop measurable goals for the implementation of the stormwater management program and report on its progress on meeting those goals.
- Implement 6 "minimum control measures" :

- Public education and outreach
- Public involvement and education.
- Illicit discharge detection and elimination.
- Construction site runoff control program.
- Post-Construction stormwater management.
- Pollution prevention and good housekeeping in municipal operations.

MASSDOT'S STORMWATER MANAGEMENT PLAN

In MassDOT's *NPDES Stormwater Management Plan for MassHighway Owned and Operated Highways*, MassDOT explains how BMPs and associated goals are addressing each of the six minimum control measures laid forth in the MS4 permit. MassDOT's MS4 Permit also requires MassDOT to evaluate its discharges that fall within a watershed of a 303(d) listed water body. When a discharge drains to a listed waterbody for which a TMDL has been developed, the MS4 Permit requires MassDOT to comply with additional requirements. Discharges to impaired and TMDL watersheds are being addressed by MassDOT's Impaired Waters Program and MassDOT's TMDL Watershed Review Program, respectively.

IMPAIRED WATERS PROGRAM

Starting in June 2010, MassDOT committed to assess all impaired water body segments that receive (or potentially receive) stormwater runoff from MassDOT roadways located in urban areas within five years. "Impaired" water body segments are those listed as Category 4a or 5 in MassDEP's Integrated List of Waters (referred to as the 303(d) list). MassDOT plans to complete assessment of all the identified impaired waters by June 2015. The program initially included approximately 684 impaired waters, which include all 303(d) waters whose sub-basins contain some portion of MassDOT's urbanized area roadways. To date, MassDOT has assessed 561 water bodies, 82 assessments have moved into design, 11 sites are under construction and 16 are completed. By identifying 303(d) waters that lie within 500 feet of at least one stormwater outfall from an urbanized roadway, MassDOT prioritized assessment by the total number of outfalls within this 500-feet area.

The assessment includes identifying impairments related to highway stormwater runoff, mapping locations of MassDOT outfalls relative to 303(d) waters, conducting site survey of discharge points and drainage infrastructure, identifying control measures and BMPs to ensure stormwater discharges will not cause exceedances in water quality standards, and designing and implementing BMPs.

The assessment also determines whether stormwater runoff from the roadways drains to the water body, and whether existing BMPs effectively treat runoff from the roadways. The assessment then sets a treatment target. When the target is not met, MassDOT will design and construct additional water quality BMPs where technically feasible. MassDOT is implementing this program through two

initiatives: the Retrofit Initiative and the Programmed Projects Initiative. The Retrofit Initiative identifies locations where BMPs could be added along existing roadways, while the Programmed Projects Initiative explores where BMPs are warranted within planned roadway construction projects. MassDOT has developed an impaired waters geospatial database to track BMP design and construction, as well as the status of water body assessments.

TMDL WATERSHED REVIEW

MassDOT will assess TMDL reports wherever a TMDL has been approved for a water body into which MassDOT's urbanized roadways discharges storm water.

MassDOT has conducted an initial review of these 41 final TMDL reports to determine whether the TMDL WLA, BMP recommendations, or other performance requirements for storm water discharges that are applicable to MassDOT.

The assessment includes identifying TMDL Waters to which MassDOT's urbanized roadways may potentially discharge stormwater, conducting a site survey of discharge points and drainage infrastructure, calculating loading from MassDOT Stormwater as it compares to the WLA, assessing whether the WLA is being met through existing storm water control measures or if additional control measures may be necessary, and finally selecting, designing, and implementing BMPs.

PRIORITIZATION OF BMP INSTALLATION

MassDOT has developed a BMP Summary Matrix, comparing BMPs as they perform in regards to managing peak flows, recharge, TSS removal, pollutant loadings, and soil infiltration capacity, as well as other parameters such as drainage area, clearance to bedrock, clearance to high water table, setback requirements, land area, slope, and maintenance sensitivity.

MassHighway's policy is to give "critical" waters (which includes Class A waters and Zone I WPAs) higher priority in terms of implementing storm water BMPs.

MASSDOT EFFORTS RELATED TO CAPE COD TMDLS

MassDOT reports on its stormwater related activities in annual reports under the 2003 NPDES Phase II Small MS4 General Permit (available at https://www.epa.gov/npdes-permits/2003-small-ms4-general-permit-archives-massachusetts-new-hampshire#ma). As of the most recent report (Permit Year 15, April 2017-March 2018) MassDOT completed its statewide review of TMDL watersheds and assessed the need for additional BMPs to meet TMDL recommendations. Construction of a stormwater BMP to address the Herring River nitrogen TMDL was scheduled for Fall 2017, and other TMDL related projects may be planned in concert with future construction activities. Table 5, adapted from a table in the PY11 Annual Report, shows MassDOT stormwater work that has been completed or is planned in TMDL watersheds.

TABLE 5. MassDOT Actions in Cape Cod TMDL Watersheds

BASIN/ TMDL NAME	POLLUTANT	MASSDOT ACTIONS COMPLETED	TO DO
Final Pathogen TMDL for the Buzzards Bay Watershed	Pathogens	MassDOT has reviewed outfalls for potential illicit discharges and found that the linear nature of their roads leads to minimal chances for illicit connections. MassDOT has focused on education of staff and following up on potential illicit connections and focusing reviews on sensitive receiving waters. MassDOT is currently prioritizing watersheds for focused illicit discharge review.	TMDL identifies potential sources of bacteria as illicit sewer connections and stormwater runoff, among others. Recommendations are to prioritize dry weather bacteria source tracking. Further recommendations include evaluating impaired waterbody segments for BMPs starting with intensive application of less costly non- structural practices such as street sweeping and monitoring of their success
Allen, Wychmere & Saquatucket Harbors	Nitrogen	The TMDL suggests that compliance with MS4 permit requirements will contribute to the goal of reducing the nitrogen load for Allen, Wychmere, and Saquatucket Harbors watersheds	MassDOT will continue to comply with its Stormwater Management Plan under the NPDES MS4 Permit
Final Pathogen TMDL Report for the Cape Cod Watershed	Pathogens	MassDOT is currently prioritizing watersheds for focused illicit discharge review. Remaining potential pollution sources to Oyster Pond are believed to be several large stormwater discharges discharging into the east end of the pond. These stormwater discharges drain from Route 28, and Main St. MassDOT has plans to fix the problems coming off Route 28, and the Town of Chatham has performed engineering projects to eliminate/treat the stormwater components coming off Main St.	1. Development of comprehensive stormwater management programs, particulary in close proximity to each embayment, including identification and implementation of BMPs 2. Illicit discharge detection and elimination (where applicable).
Final Pathogen TMDL for the Three Bays Watershed	Pathogens	MassDOT has completed the statewide review of TMDL watersheds for additional BMPs were identified, they have been or will be included in future construction projects.	Determine the Route 28 roadway drainage area discharging to the Marstons Mills River and install best management structures and/or operational practices to the maximum extent practicable. Infiltration structures and devices that have been installed to control the road runoff from Route 28 into

			the Marstons Mills River should be inspected to determine their performance and condition. MassDOT should also continue to identify and implement to the maximum extent practicable best management practices so that the water quality standard for bacteria in SA waters is met.
Final TMDL Report of Bacteria for Frost Fish Creek, Chatham	Bacteria	MassDOT has completed the statewide review of TMDL watersheds for additional BMPs were identified, they have been or will be included in future construction projects.	Determine the Route 28 roadway drainage discharging to Frost Fish Creek and install best management structures and/or operational practices to the maximum extent practicable with a goal of meeting the water quality standard for bacteria in SA waters.
Final TMDL Report of Bacteria for Muddy Creek, Chatham	Bacteria	The Route 28 culvert over the MuddyCreek has been replaced through a project funded by Massachusetts Department of Environmental Restoration. The new roadway crossing eliminated the tidal restriction and included leaching basins to treat stormwater discharge before entering Muddy Creek. This project has implemented all improvements feasible to improve water quality of MuddyCreek as it relatesto Route 28.	Will review TMDL and determine if additional controls are needed. Should determine drainage area discharging to Muddy Creek and install BMPs that are designed to meet TMDL.
Herring River	Nitrogen	TMDL states that runoff from impervious surfaces is a negligible source of nitrogen load to the river when compared to other sources. The TMDL suggests that compliance with MS4 permit requirements will contribute to the goal of reducing the nitrogen load for the Herring River Estuarine System.	MassDOT will continue to comply with its Stormwater Management Plan under the NPDES MS4 Permit. MassDOT has designed and is planning to construct a stormwater BMP (water quality swale) to treat direct discharges to the Herring River fromRoute 6 at the Route 6/Herring River crossing. Construction is scheduled to begin in the Fall of 2017.
Final Nutrient	Total Nitrogen		

TMDL for Centerville River/East Bay	
Final Nitrogen TMDL for Little Pond	Total Nitrogen
Final Nitrogen TMDL for Oyster Pond	Total Nitrogen
Final Nitrogen TMDL for Phinneys Harbor	Total Nitrogen
Final Nitrogen TMDL for Pleasant Bay System	Total Nitrogen
Final Nitrogen TMDL Report for Five Sub-Embayments of Popponesset Bay	Total Nitrogen
Final Nitrogen TMDL Report for the Quashnet River, Hamblin Pond, Little River, Jehu Pond, and Great River in the Waquoit	Total Nitrogen

Bay System	
Final Nitrogen TMDL Report for the Three Bays System	Total Nitrogen
Final Nitrogen TMDL for West Falmouth Harbor	Total Nitrogen
Final Nitrogen TMDL Report for Five Chatham Embayments (Stage Harbor, Sulphur Springs, Taylors Pond, Bassing Harbor and Muddy Creek)	Total Nitrogen
Final TMDLs of Nitrogen for Great, Green, and Bournes Pond Embayment Systems	Total Nitrogen

Coordinating Transportation Stormwater Infrastructure with the 208 Plan

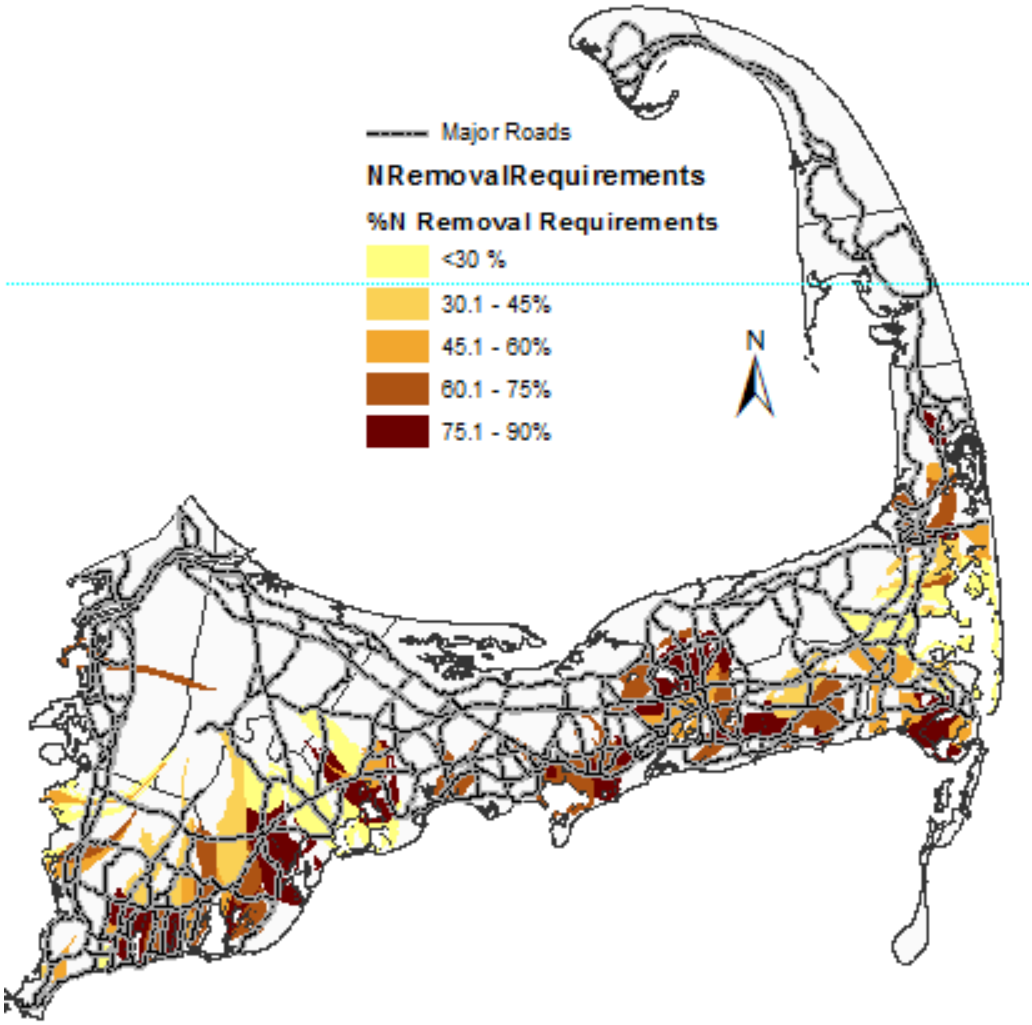
The Cape Cod Area Water Quality Management Plan Update, also known as the "208 Plan," addresses options for Cape Cod communities to address nitrogen loading from controllable sources in Cape Cod watersheds. The 208 Plan outlines many options for addressing nitrogen loading that include the traditional approach of sewering, as well as many alternative approaches such as installing permeable reactive barriers, constructed wetlands, ecotoilets, aquaculture and shellfish bed restoration. There are ample opportunities where stormwater management design on Cape Cod roadways should be coordinated with nitrogen reduction goals of the 208 Plan.

Cape Cod communities that consider constructing sewers as part of their nitrogen mitigation strategy can simultaneously incorporate stormwater management efforts on Cape Cod roadways. For example, as roads are repaved, communities can inspect water and sewer conduits, storm drains, remove illicit connections to sewers and storm drains, repair leaks, and make any other necessary repairs.

Some of the alternative technologies in consideration for nitrogen management on Cape Cod as part of the 208 Plan are actually stormwater treatment systems that also provide significant nutrient removal. Examples of stormwater BMPs proposed for nitrogen management are bioretention/soil media filters, phytobuffers, vegetated swales, and stormwater constructed wetlands. All of these technologies provide physical filtration, uptake of pollutants within plant tissue, nitrification and denitrification, and other microbial biochemical processes that effectively remove a broad range of pollutants from the water column. According to the Draft MS4 Permit, Cape Cod communities need to consider installing BMPs that significantly reduce nitrogen where discharges occur in nitrogen TMDL watersheds.

For optimal effectiveness, sewer infrastructure and alternative nitrogen reduction technologies should be located in areas that contribute the most nitrogen loading to impaired embayments. Roadway development or upgrades within watersheds that require a high amount of nitrogen removal should consider opportunities to (1) include sewer infrastructure alongside current roadway plans and (2) implement stormwater BMPs to remove nitrogen.

FIGURE 13. Nitrogen Removal Requirements in Subembayments



Regional Policy Plan Considerations for Stormwater Management

Transportation infrastructure related to development or redevelopment may be subject to regional regulation by the Cape Cod Commission. If the development project meets a specific size or other threshold identified in the Cape Cod Commission's "Enabling Regulations for the Purpose of Reviewing Proposed Developments of Regional Impact (DRIs)," the project will be subject to review. In order for the project to be granted approval, the project must be consistent with the Goals and Objectives of the RPP (as well as local comprehensive plans, zoning, etc.). In its review, the Commission must also find that the probable benefits of the proposed project outweigh the probable detriments. The Commission may consider best practices and design elements that exceed minimum requirements in this analysis.

Design requirements related to Stormwater Quality are applicable to all DRI projects. Standards related to roadway runoff dictate on-site infiltration practices and devices, bioinfiltration practices, minimum of 2-foot separation to groundwater for infiltration basins or other stormwater leaching structures, and development of maintenance and operation plans. Additionally, the standards require limiting impervious surfaces by constructing overflow peak parking areas from pervious materials (porous pavement, permeable pavers, or grass pavers), and that bioremediation should be incorporated in to parking islands and roadway perimeters. Also in the RPP is the recommended practice of limiting roadway lane widths to 9 feet to minimize runoff from impervious surfaces.

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix J: Pavement Management

JULY 15, 2019

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Introduction

As an essential task required by the Cape Cod Metropolitan Planning Organization (MPO) through its Unified Planning Work Program, this report provides the status of pavement condition assessment activities on Cape Cod. The objectives of this effort are to collect data and implement a regional pavement management system for Cape Cod to provide an objective rating of pavement conditions and needs.

The pavement management process is conducted with the intent to keep the roadway system in the best possible condition with the most efficient use of available funds. There are distinct advantages to managing pavement condition and significant cost savings that can take place with preventative or rehabilitation measures rather than waiting until a road needs reconstruction. As stated in the MPO-approved Cape Cod Regional Transportation Plan, the goal of the pavement management process is for all federal aid-eligible roads to be maintained in "excellent" condition. Of course, due to the reality of limited financial resources, it is necessary to prioritize pavement repair based on affordability. Deciding which roads to improve and by what technique in a fiscally responsible manner is the essence of Pavement Management.

PAVEMENT MANAGEMENT SYSTEMS - BACKGROUND

Pavement Management is the practice of planning for pavement repairs and maintenance with the goal of maximizing the value and life of a pavement network.

To accomplish this, a community needs to have several repair techniques in its arsenal and the knowledge of when to apply them. This is where pavement management comes into play. With a comprehensive database of road conditions, the pavement management software can model when to perform which repairs on a road network. Of course, engineering judgment is required to finalize any list of street repairs, as no computer model can take every variable analyzed in making a repair decision into account. The computer system is a great springboard to help a community start its repair program for each year and is an excellent method of storing the repair data.

Below is a model of how a street's pavement deteriorates over time. Interpreting the curve, a street starts out in excellent condition when it is newly constructed. Midway through its life, a low-cost repair such as crack seal and full depth patch will cost approximately a dollar a square yard. It takes only a few years for the window of opportunity to perform this low-cost maintenance to pass after which the road would need an overlay costing $13 - $17 per square yard. By performing timely maintenance, road conditions can be improved today thereby extending the life of the road.

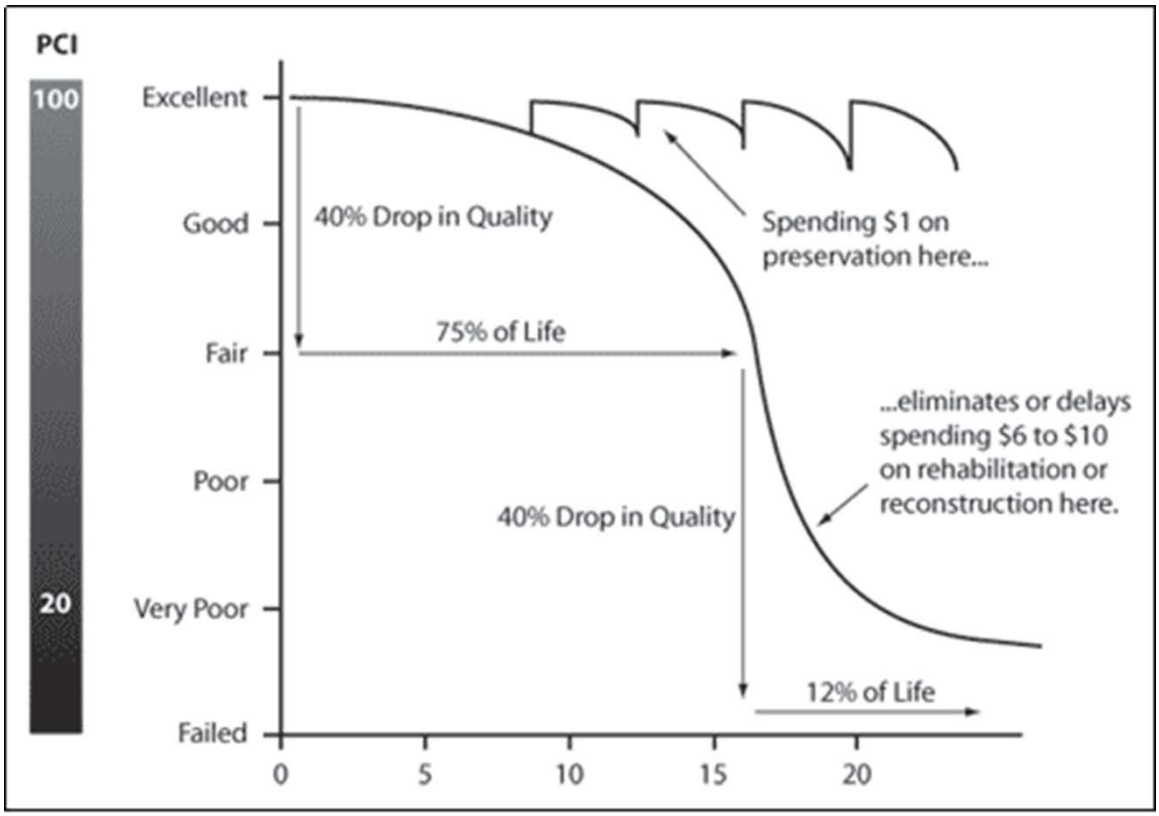


FIGURE 1. Pavement Deterioration Curve

Source: Federal Highway Administration

EVALUATION CRITERIA FOR CCC DATA COLLECTION

The Cape Cod Commission has continued to collect pavement condition data since 2011 through two distinct efforts: a series of "Windshield Surveys" and spot observations at specific locations where the seasonal traffic technicians were installing Automatic Traffic Recorders (ATRs). In both cases observers were given photographs and descriptions of example pavement distresses. Observers used a 1 – 5 rating system and made notations of distresses. Copies of the observations are provided in the appendix of this report. The following table is a summary of the guidance given to observers:

TABLE 1. CCC Evaluation Criteria

CONDITION	DESCRIPTION	CRITERIA
1	Very Good to Excellent	New pavement with no cracking, rutting, raveling/ signs of wear
2	Good to Very Good	No cracking, rutting, showing a little wear
3	Fair to Good	Showing evidence or more wear and possibly repairs that are in good condition
4	Poor to Fair	Evidence of cracking, rutting, serious wear
5	Poor	Severe cracking, rutting, potholes

SURVEY OF CAPE COD COMMUNITIES' PAVEMENT MANAGEMENT ACTIVITIES

In early September 2011, and email survey was sent to each of the 15 towns' Department of Public Works directors. Follow-up inquiries were made in following years. The survey included the following questions:

1. Do you maintain records of pavement quality on your community's roadways?
2. Can you send [electronically preferred] summaries of pavement quality assessments?
3. What system/method do you use to assess pavement quality?
4. Can you send us a report/documentation of methods used?
5. What method do you use to determine repair strategies?
6. Do you have estimated costs for implementing various repair strategies?
7. Can you forward us cost estimates sheets?
8. Do you have a capital plan for pavement improvement?
9. Can you forward us a copy of the capital plan?

Several communities have responded as summarized in the following sections.

Barnstable Pavement Management Activities

The Town of Barnstable utilizes detailed survey and analysis performed by VHB as a Consultant. Their work is entered onto Barnstable's database and periodic reports are provided and discussed. The DPW participates in the data analysis, particularly in the cost analysis. DPW reviews project bids received by the Town and establishes base line costs for each pavement treatment band,

these costs are discussed with the town's consultant - then utilized in the pavement conditions report. In addition to the VHB work, the DPW maintains a record of roadway repairs and relies upon experienced field personnel to assist in planning for individual maintenance tasks such as crack & chip seal. DPW also informally monitors the performance of all treatments. Key to the pavement management program is coordination with other utilities and proposed roadway rehabilitation information is passed to utility companies. A moratorium is in place for 5 years after application of a new surface. The Town of Barnstable does not maintain a public "5-year plan" - because of political considerations.

Submitted materials include:

- VHB-prepared "2010 Pavement Management Report." See section 1.4.1 for discussion of VHB Pavement Management Systems.
- Excel workbook containing typical costs for various items involved in pavement repair and related road work.

Bourne Pavement Management Activities

Bourne is currently doing road resurfacing on an as-needed basis. The town tries to repave four to five miles of roadway each year. In doing that, the town has kept their main roads as their top priority and then broken off into the subdivisions. Bourne does not currently have a capital plan. The town is in discussion with a consultant to look at Bourne's roads and begin working toward a formal pavement management plan.

Brewster Pavement Management Activities

In 2015, the Town of Brewster published its "Pavement Management Plan." Prepared by the consultant CDM Smith, the plan included the following findings:

- The Town's overall Pavement Condition Index (PCI) was a 73.
- If no further money were spent on roadways for 10 years, that PCI would decline to 63.
- Performing all the work necessary on the roads as of the inventory date would cost in the order of magnitude of $12 Million.
- Maintaining the existing PCI of 73 would cost approximately $1.1 Million per year over the next 5 years.
- Continuing to spend at present levels ($470K, if all went to roadway work) will result in a decline over the next 5 years to a PCI of 71. As it nears the critical PCI of 55, the overall condition will decline more rapidly.
- To reach a target PCI of 80 in 5 years, the Town would need to spend approximately $2.3 Million per year.

The town has selected the software "MicroPaver" to perform inventory management, calculate Pavement Condition Index ratings, and other pavement management functions.

Dennis Pavement Management Activities

The Town of Dennis uses VHB's Pavement Management for guidance. The term "guidance" is used because while VHB keeps Dennis' pavement quality records, does field verification on a 1/5th per year basis, grades the town's roads and makes recommendations for repairs, the town has to spend road funds based on several factors that the program is not designed to consider. These local parameters are: some work in each of Dennis' 5 villages each year, reconstruction of failed roads, resurfacing of dirt roads and lumping the type of repair to give off-cape vendors enough to give the town a reasonable rate.

The town has not had an assessment prepared of estimated costs for various repair strategies for several years. The town's capital plan for pavement improvement allocates $600,000 per year for "secondary roads." Chapter 90 funds are used exclusively for primary roads.

Eastham Pavement Management Activities

The Town of Eastham is developing a pavement management system. Current efforts include detailed spreadsheets identifying treatment strategies.

Submitted materials include:

- Spreadsheet listing of town roads with summary of face type
- Spreadsheet listing of Town & Private Roads in Town of Eastham with summary of surface type
- Spreadsheet listing of town roads with itemized surface type

Falmouth Pavement Management Activities

Falmouth uses VUEWorks Asset Management Software to track their Public Works Assets. Falmouth has just begun to use the Pavement Condition rating system that is a module of the system. It is based on the ASTM rating system. Falmouth has provided a copy of their Pavement Manual, a report of the roads they have rated so far, and a sample report of one of the roads. Falmouth uses a couple of strategies to determine their repair schedule. The town has a 10-year roadway plan for major repairs. This is funded by the town operating budget and a Capital Plan. Falmouth has provided both documents. The town also has a service call/ work order system to take requests from the public for signs, potholes, sweeping and grading, etc.

Falmouth does not have cost estimate sheets. The town does some work in-house and contracts its crack sealing and large repairs out. These are covered by the town operating budget and Capital Plan.

Submitted materials include:

- Sample Pavement Condition Form
- VUEWorks Pavement Management System Training Guide
- FY 2013-2022 Capital Improvement Program summary form
- Public Works Department Roadway Maintenance Program FY 2012-2023

Harwich Pavement Management Activities

The Town of Harwich DPW utilizes an online database that was developed with Bonsai Logic (a small local software developer) to maintain a road inventory, to develop cost estimates, to reconcile DPW estimates against actual expenses and to maintain a roadwork history. The DPW does not utilize the database to develop a PCI (Pavement Condition Index). The town rates roads in 1 of 4 structural conditions: good, fair, deficient, intolerable

The DPW does have a 5-year road maintenance plan that is updated every few years and is available on the Harwich website. The town uses Chris Nickerson, Highway Road Manager who is a certified pavement inspector, to develop a plan based on his experience, training and knowledge of Harwich's 481 public roads (142 miles). The town attempts to balance maintenance with repair to avoid costly reconstruction utilizing many different processes and procedures. For costs, the town utilizes county bid pricing (p. 2 of the town's Five-Year Maintenance Plan).

Submitted materials include:

Summary of roadwork since 2005: excludes any TIP projects

- FY 12-18 Capital Plan – Proposed spending for town capital improvements including pavement maintenance/repair
- Roadwork job examples - Detailed itemized breakdown at pavement repair work at two town locations.
- 5 Year Road Maintenance Plan FY11-FY15 – detailed plan of various repair proposals for many town roads, including itemized costs.
- Harwich Road Inventory – 2010 listing of all town roads. Includes information such as surface width and type, condition (scale of 1 to 4), and length.

Mashpee Pavement Management Activities

Mashpee has provided a list of recent paving projects completed between 2008 and 2013. Paving has occurred on over 8 miles of roads and bike paths on municipal roadways during this timeframe.

Provincetown Pavement Management Activities

GHD was hired to develop a Town-wide paving plan with the goal of developing a long-term paving and road resurfacing plan that would evaluate the condition of the current roadways infrastructure, develop costs of maintenance and rehabilitation, and provide a tool to track repairs and expenditures.

A summary of the effort states that:

- The Pavement Management Plan provides detailed pavement condition and repair cost information
- The MicroPaver software provides a strong tool to manage the Town's roads into the future
- This information needs to be integrated with other project and utility information to inform the annual budget process on which roads will be repaired and paved next
- Grant funding opportunities will be pursued

Sandwich Pavement Management Activities

The Town of Sandwich retained the firm of Vanasse Hangen Brustlin (VHB) to perform pavement management services. A comprehensive study was undertaken to re-evaluate pavement conditions in Sandwich and to allow for the analysis of various funding scenarios. VHB performed a detailed inspection of the condition of the pavement on all town-maintained roads and updated a database of this information using VHB's "Road Manager" software.

To determine road repair strategies, the town mainly uses PCI (Pavement Condition Index) and Benefit. For estimated costs for implementing various repair strategies, the town uses the County's bid process and incorporates these into their own spreadsheets. The town's 5-Year plan changes dramatically year-to-year but provides a guide to follow as funds become available.

Submitted materials included the following:

- VHB Presentation on Sandwich Pavement Management
- Road Program Map – color coded map of town roads assigned to years (2006 – 2010)
- Excel workbook listing town roads with PCI, Benefit, and Repair Alternative information
- Excel workbook itemizing bid costs for various repairs by various vendors
- Excel workbook itemized by road, listing planned paving projects
- Excel workbook itemizing repair type, treatment, and comments for town roads, separately for each year 2007-2011
- Pavement Management Update Study – VHB-prepared 2006 report. See section 1.4.1 for discussion of VHB Pavement Management Systems.

Truro Pavement Management Activities

Truro uses local knowledge to determine pavement repair priorities.

Yarmouth Pavement Management Activities

The Town of Yarmouth retained the firm of Vanasse Hangen Brustlin (VHB) to perform pavement management services. VHB services consist of performing a comprehensive study to evaluate pavement conditions in Yarmouth and to allow for the analysis of various funding scenarios; perform a detailed inspection of the condition of the pavement on all town-maintained roads and update a database of this information using VHB's "Road Manager" software.

To determine repair strategies, the town reviews an initial list generated by the software and then decides whether to apply chip seal, double ship seal, or overlay. Main roads are treated with rubber chip seal or overlay. In the town's capital plan, annual spending ranges from $1.3 million to $1.5 million for roadway maintenance.

SUMMARY OF TOWN PAVEMENT MANAGEMENT EFFORTS

Based on responses from the September 2011 email survey and subsequent follow-up, the following table summarizes the techniques that responding towns use for pavement management.

TABLE 2. Summary of Responding Towns' Pavement Management Techniques

TOWN	PAVEMENT MANAGEMENT TECHNIQUE
Barnstable	VHB Pavement Management System
Bourne	Local knowledge – as needed basis
Brewster	CDM Smith's MicroPaver system
Dennis	VHB Pavement Management System
Eastham	Locally developed -spreadsheets
Falmouth	VUEWorks Asset Management Software
Harwich	Bonsai Logic Roadway Inventory
Mashpee	Local knowledge
Sandwich	VHB Pavement Management System
Provincetown	MicroPaver system
Truro	Local knowledge
Yarmouth	VHB Pavement Management System

VHB Pavement Management System

The most prevalent technique (as identified by many of the towns responding to the email survey) is the Pavement Management System developed by Vanasse Hangen Brustlin (VHB). The following sections contain excerpts describing the VHB techniques. These techniques are included in the reports submitted by the various towns:

METHODOLOGY

VHB performed a detailed condition evaluation of each town's public roadways to build the pavement management system. The first step was to identify the roadway network. The second step was to further break each street in the roadway network into pavement management sections. The third step was to carefully categorize, measure, and record the individual pavement distresses within each pavement management section and perform the inventory of sidewalks, curbs, and ramps. Finally, the fourth step was to customize the road repair treatment selection and unit costs within the pavement management software through discussions with Town officials. All these steps were performed prior to the study of future funding scenarios.

Network Identification

Network Identification builds an inventory of streets that describe the municipality's complete roadway network. The direction of travel, street length, width, ownership, classification, zone and pavement type are among the items identified at this initial phase in the pavement management process. This integral step ensures the streets surveyed are the definitive set to be analyzed.

Pavement Management Section Identification

Once the Network Identification is complete, the field work begins. Each street contains one or more pavement management sections. A pavement management section defines the limits of previous construction or maintenance activities within each street. Sections are defined by having the same width, typical distresses, functional class, etc. The goal is to set up homogenous areas of pavement to aid in assigning the appropriate repair. A "street" may be one section, or it may be comprised of several pavement management sections, depending on its construction history.

Surface Distress Assessment

For each pavement management section, the severity and extent of nine major pavement distresses are recorded, and then entered into a weighted formula to arrive at a Pavement Condition Index (PCI). The distresses are categorized as base related or surface related distresses. Base related distresses indicate that the pavement structure is inadequate for the existing traffic load and soil conditions. Streets that show significant base related distresses may need to have the pavement structure strengthened with either thicker or stronger base or pavement materials. Surface related distresses are caused by age and weathering of the pavement. Streets that have predominantly surface related distresses are excellent candidates for maintenance sealing to

inhibit further pavement oxidization (the main effect of aging). Streets with more of the base related distresses will most likely need some full depth patching, structural overlays or reclamation/reconstruction.

The four base related distresses are:

- Potholing or non-utility patching
- Alligator cracking
- Distortion
- Rutting

The five surface related distresses are:

- Block cracking
- Transverse or longitudinal cracking
- Bleeding or polished aggregate
- Surface wear or raveling
- Shoving, slippage or corrugation

PCI Defined

A PCI is generated for each inventoried pavement management section in the town using the surface distress data collected by VHB. PCI is measured on a scale of zero to one hundred, with one hundred representing a pavement in perfect condition and zero describing a road in impassable condition. Each type of observed pavement distress is assigned a deduct value based on the type, severity and extent of the distress. A weighted sum of the deduct points is subtracted from the perfect "one hundred" road to generate a PCI for each pavement management section. In general, base related (pavement foundation) distresses are weighted more heavily than surface related distresses. For example, if 15% of a road section had medium severity "Alligator Cracking" it would receive a deduct of 40 points. Whereas the same area of "Block Cracking" would only receive a deduct of 15 points. The actual PCI calculation follows:

PCI = 100 – (Highest Deduct Value) – (25% of remaining base related deduct values) – (10% of remaining surface related deduct values)

The Five Treatment Bands

The pavement management system uses broad ranges to group the individual repair types into five major treatment bands. Treatment bands are a useful tool to summarize data on a Town-wide basis. An individual road segment will fall into a category based on the strategy table's output of

repair types and will vary due to functional classification. The goal is to gain a broad understanding of the existing conditions in simple yet meaningful terms.

TABLE 3. Treatment Band Descriptions

TREATMENT BAND	PCI*	DESCRIPTION
DO NOTHING	93-100	Excellent condition - in need of no maintenance.
ROUTINE MAINTENANCE	86-92	Good condition – may need crack sealing or minor localized repair.
PREVENTIVE MAINTENANCE	76-85	Fair condition – pavement surface may need surface sealing, full depth patch and/or crack sealing.
STRUCTURAL IMPROVEMENT	56-75	Deficient condition – pavement surface structure in need of added strength for existing traffic. Typical repairs are overlay with or without milling.
BASE REHABILITATION	0-55	Poor condition – in need of base improvement. Typical repairs are reclamation or full depth reconstruction.

**Note: Treatment bands are defined below. These are only general PCI ranges for reference purposes and represent only one pavement type. There are several fields considered by the strategy table when assigning repair types to each individual street. Source: VHB*

Do-Nothing

The Do-Nothing category exhibits roads which need no maintenance. These roads are in excellent condition and existing distresses generally do not need to be addressed.

Routine Maintenance

Routine maintenance activities are those which are taken to correct a specific pavement distress. Routine maintenance usually addresses localized pavement defects and includes activities such as:

- Full depth patching;
- Skin patching;
- Crack sealing.

Preventive Maintenance

Preventive maintenance activities are those which are performed at planned intervals to protect and seal the pavement. Seals are designed to provide one or more of the following benefits:

- Prevent the intrusion of air and moisture;
- Fill small cracks and voids;

- Rejuvenate an oxidized binder;
- Provide a new wearing surface.

Structural Improvement

Structural improvement includes the work necessary to restore the pavement to a condition that will allow it to perform satisfactorily for several years. Generally, a structural improvement will consist of a milling the existing pavement down and applying a new Hot Mix Asphalt Overlay allowing existing grades to be maintained. When the existing grade can be increased a new Hot Mix Asphalt course can simply be placed upon the existing surface. Structural improvements also include the work necessary to prepare the pavement for an overlay, either with or without milling. The major activities involved in the rehabilitation process are:

- Partial depth patching;
- Full depth patching;
- Joint and crack sealing;
- Grinding and milling;
- Hot Mix Asphalt Leveling Courses.

Base Rehabilitation

Base rehabilitation utilizes one of two methods:

- Reclamation;
- Reconstruction.

Reclamation is the process of rehabilitating existing deteriorated pavements. The existing pavement and base, subbase, and possibly subgrade are pulverized and blended to create a homogenous pavement base. This reclaimed pavement base is then paved with a new Hot Mix Asphalt surface. Reconstruction is the complete removal and replacement of a failed pavement, and might also involve widening, realignment, traffic control devices, safety hardware, and major base and drainage work.

Customizing Repair Strategies

VHB meet with the Town DPW to review VHB's typical repair strategies, and to learn how to customize these strategies to meet the Town's specific needs. VHB also refines repair unit costs. VHB's goal was to understand the town's decision-making process and simulate that process in the budget analysis software based on the pavement condition and other criteria of each pavement section.

Preparing Budget Scenarios

Once the roadway conditions are inventoried and analyzed, and the repair strategies are defined, the impact of various spending programs on the roadway network is assessed. These studies can range from 1 to 20 years; typically, 5-year studies are used. The purpose of the budget planning process is to determine the impact of various spending levels to find a funding level that will best meet the town's needs. The budget analysis software uses pavement deterioration curves, unit costs, and the strategy tables developed in the repair strategy definition phase to assign each street a repair type and associated cost for each year of the study. The software also assigns each street a benefit value that is used to prioritize which streets the software will select for repair each year. It is important to understand that a pavement management system is a network-wide planning tool and is not intended to give definitive street-by-street repair data. Field verification and testing are recommended to confirm any street repair list generated.

Deterioration Curves

To properly plan for future repairs, the budget analysis feature of the pavement management system uses deterioration curves. The deterioration curves estimate the rate at which the pavement condition decreases over time. These pavement deterioration curves depict two major categories of functional classification - arterials and collectors in one curve and local roads in the other. An example deterioration curve is presented in the following figure:

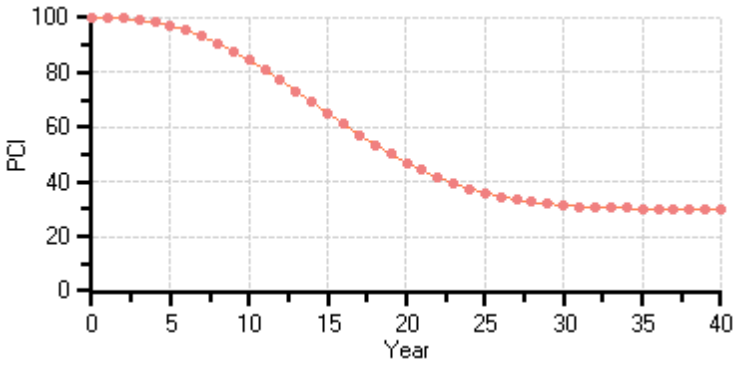


FIGURE 2. Sample Deterioration Curve

Source: VHB

Strategy Table

The pavement management system uses a table of repair strategies to assign specific road repair types to individual roadway segments. The repair strategy table incorporates PCI ranges as well as functional class and pavement type to simulate decisions consistent with Barnstable's repair practices and procedures.

Project Prioritization

The budget analysis software prioritizes needed system repairs based on the estimated "Benefit Value". The Benefit Value formula is calculated using variables representing traffic volume, repair service life, PCI, and unit repair costs for each pavement management section. For each plan year, the software prepares a future roadway condition projection, exhausts the assigned budget, and then produces an annual list of roads included in the repair program. The system also allows the user to enter an inflation rate to account for estimated increases in future year construction costs. A 4% inflation rate is typically used.

The Benefit Value prioritization process generally favors cost effective maintenance alternatives. Repair actions are typically delayed on those sections that require reconstruction or major rehabilitation because the benefits for dollars spent are generally lower than maintenance candidates. After the relatively good roads are "saved," improvements are directed towards the poorer arterial and collector roads, and then to the local roads in need of major rehabilitation.

PAVEMENT MANAGEMENT ANALYSES

The data collected in the monitoring process will be continually analyzed to identify overall pavement conditions in the different Cape Cod towns to assist in programming maintenance and reconstruction activities.

According to information prepared for the Cape Cod Regional Transportation Plan, the Cape Cod Region possesses 738.98 miles of roadway eligible for federal funding. Of those miles, 541.19 are under the jurisdiction of the Cape's local communities.

MassDOT evaluates roads under their own jurisdiction and a selection of municipally-owned roadways. The following table lists the corresponding rating from Excellent to Poor, based on a "PSI" (Pavement Serviceability Index) rating – roughly analogous to the "Pavement Condition Index" (PCI) commonly used.

Pavement Condition	Excellent	Good	Fair	Poor
"PSI" Range	PSI >=3.5	PSI 2.8-3.5	PSI 2.3-2.8	PSI < 2.3

CCC Evaluations of Pavement Conditions – "Windshield" Surveys

Beginning in 2011, Cape Cod Commission staff undertook a series of "windshield" surveys throughout Barnstable County. Starting in 2014, a new data collection strategy was deployed, based on Geographic Information Systems' needs and strengths. Data-collection regions of each town were identified which contained roughly one-third of the mileage of federal-aid eligible municipal roadways. The quality and accuracy of the data collection was greatly improved using

GPS-capable tablet computers. The following figure shows the roadways that the CCC staff collected data on in 2018.



FIGURE 3. Municipal Roads Surveyed in 2018

The following table provides a summary by town of the Cape Cod Commission's windshield survey data.

TABLE 4. Surveys of Pavement Condition - miles

TOWN	VERY GOOD TO EXCELLENT	GOOD TO VERY GOOD	FAIR TO GOOD	POOR TO FAIR	POOR	TOTALS
Barnstable	9.2	51.8	40.7	8.8	1.0	111.6
Bourne	0.4	8.6	23.6	8.4	0.4	41.3
Brewster	4.2	5.9	11.0	4.6	0.8	26.5
Chatham	0.4	3.4	5.7	3.2	0.0	12.7
Dennis	3.7	29.8	9.6	2.2	0.0	45.3
Eastham	1.5	3.0	4.4	7.9	0.0	16.8
Falmouth	7.2	17.0	39.9	19.4	0.4	83.9
Harwich	1.3	19.8	13.3	8.6	0.2	43.1
Mashpee	0.0	4.2	19.0	4.7	1.7	29.5
Orleans	1.6	8.9	5.6	0.3	0.6	16.9
Provincetown	1.5	0.9	10.9	0.0	0.0	13.3
Sandwich	2.7	12.6	15.1	4.3	3.2	37.9
Truro	0.0	0.0	8.4	4.0	0.0	12.4
Wellfleet	0.5	10.4	7.0	1.5	0.0	19.5
Yarmouth	2.7	21.7	27.1	0.6	0.0	52.0
Total:	36.8	198.0	241.2	78.5	8.3	562.8

Source: latest data available from 2016-2018, collected by Cape Cod Commission

As shown in the table above, approximately 560 miles of roadway have been surveyed at least once as recently as 2018. The most common rating "Fair to Good" yielded over 240 miles. This is followed by 198 miles of "Good to Very Good", 78.5 miles of "Poor to Fair," over 36 miles for both "Very Good to Excellent" and approximately 8 miles of "Poor." The following figures provide a graphic of the CCC survey data in a series of four maps (Upper Cape, Mid-Cape, Lower Cape and Outer Cape). The CCC evaluations are shown as colored parallel lines ranging from Blue (Very Good to Excellent) to Red (Poor).

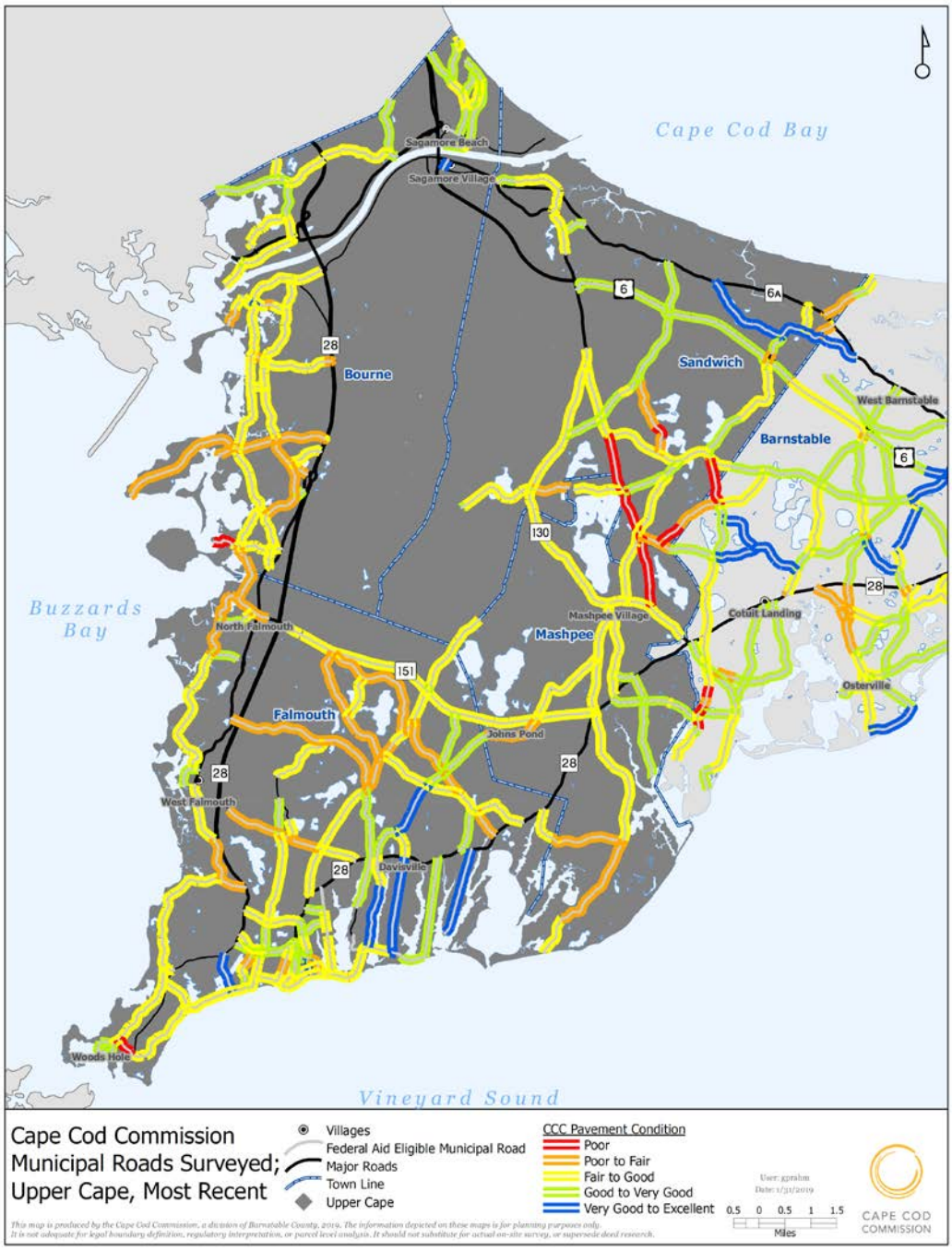


FIGURE 4. Pavement Condition Surveys: Upper Cape

Source: latest data available from 2016-2018 collected by Cape Cod Commission

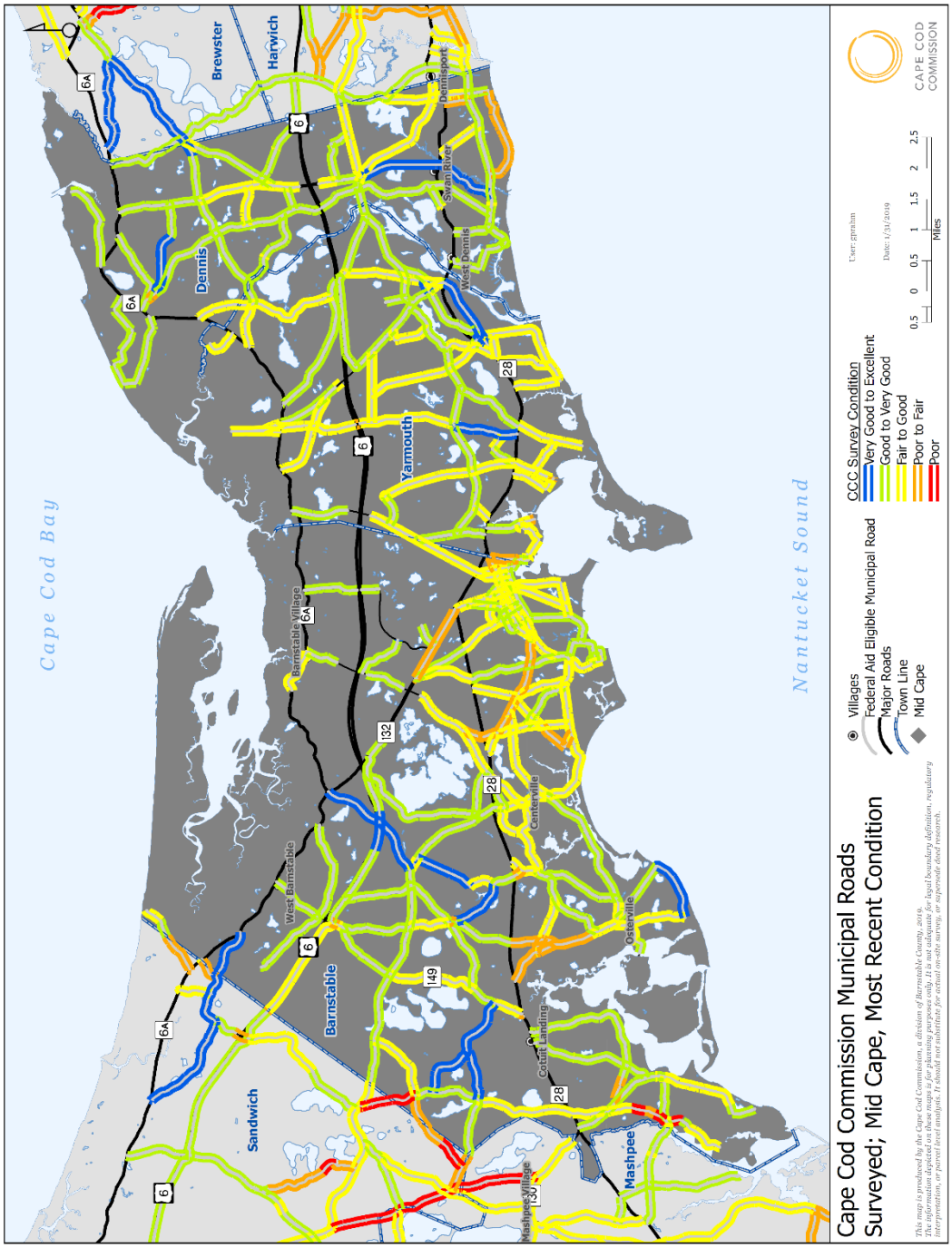


FIGURE 5. Pavement Condition Surveys: Mid-Cape

Source: latest data available from 2016-2018 collected by Cape Cod Commission

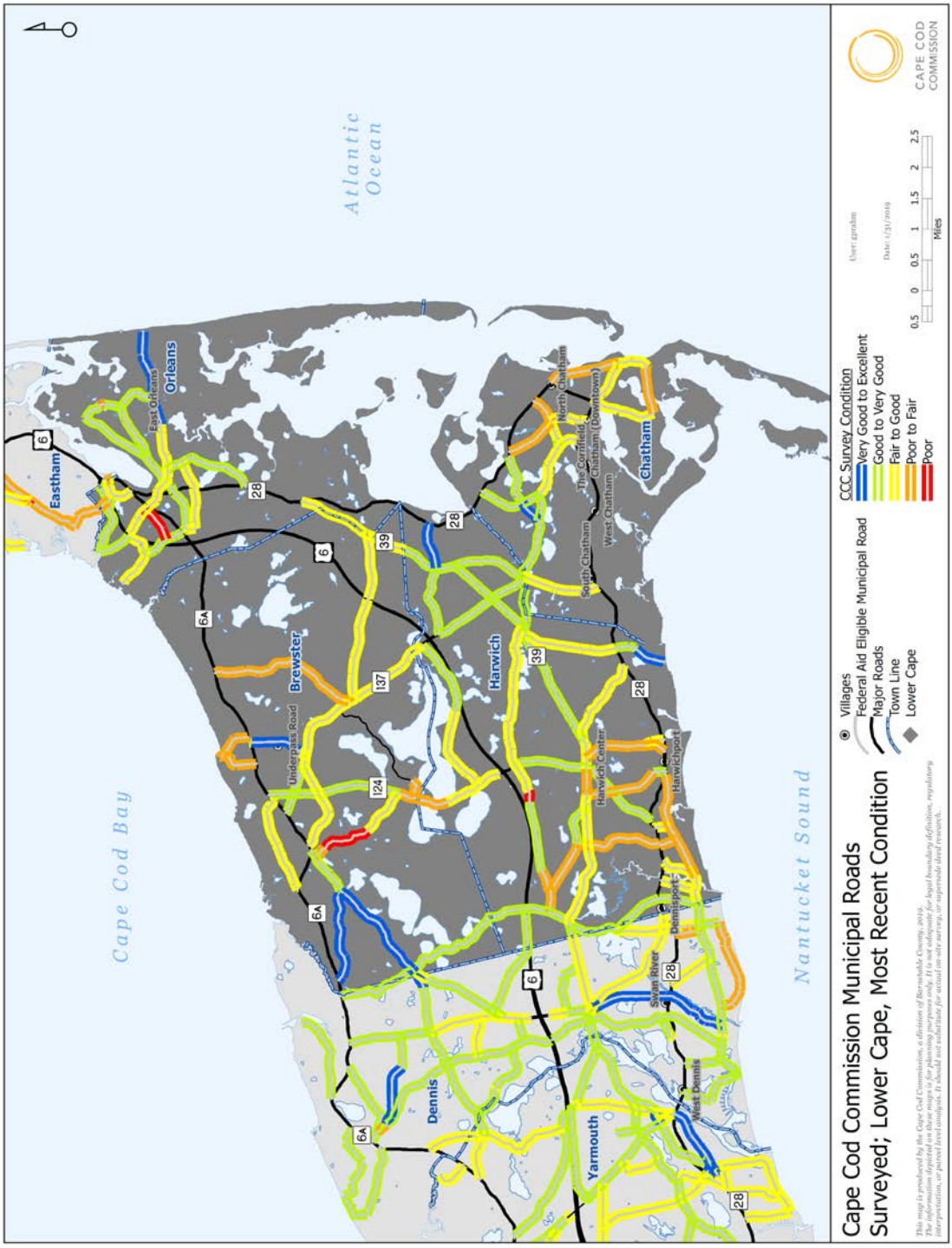


FIGURE 6. Pavement Condition Surveys: Lower Cape

Source: latest data available from 2016-2018 collected by Cape Cod Commission

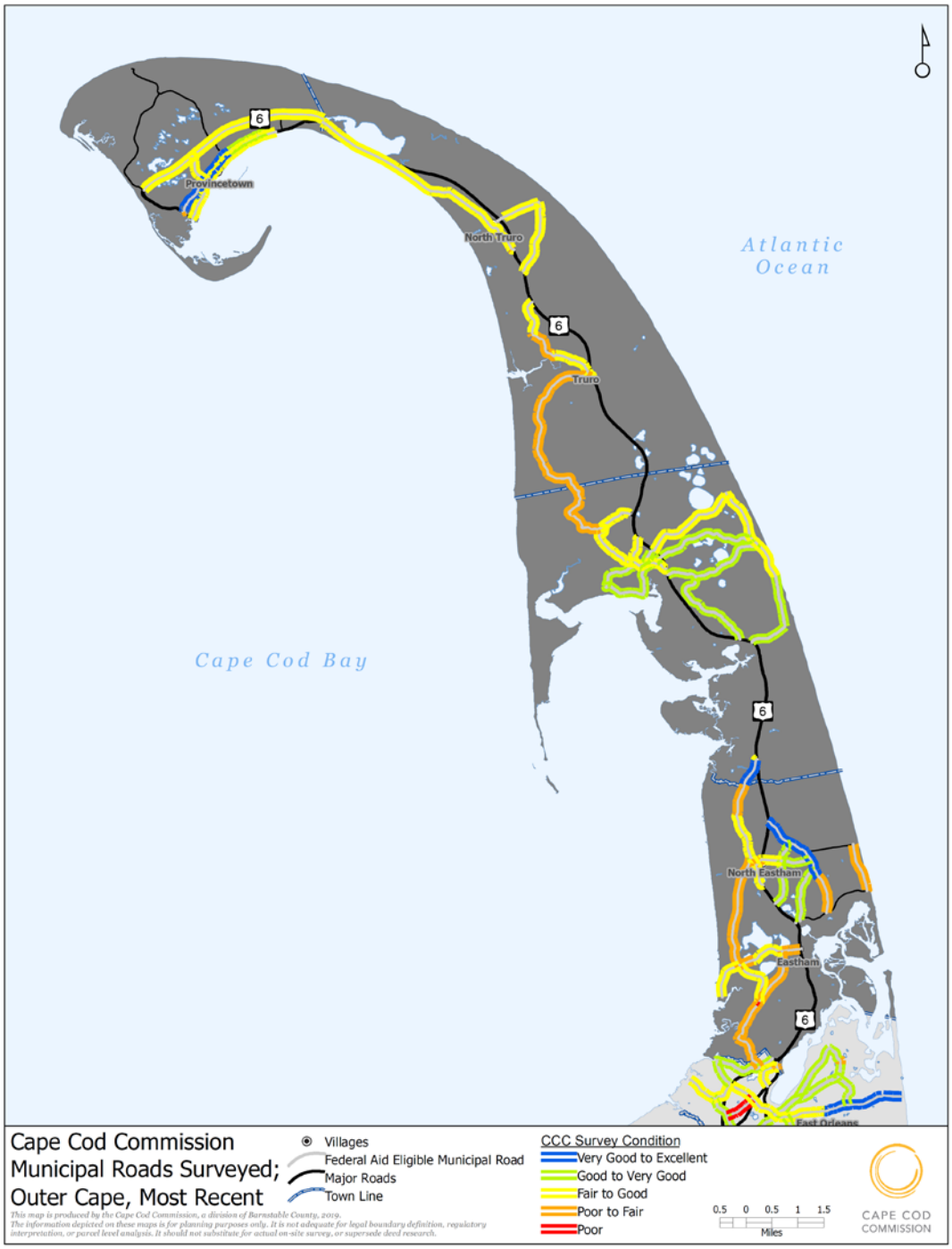


FIGURE 7. Pavement Condition Surveys: Outer Cape

Source: latest data available from 2016-2018 collected by Cape Cod Commission

CCC Evaluations of Pavement Conditions – ATR Sites

Starting in mid-summer of 2011, CCC traffic technicians were tasked with collecting pavement condition data as part of their work in setting up Automatic Traffic Recorders (ATRs). Including data collected in subsequent years, this yielded pavement condition data at 646 unique locations throughout the Cape's 15 towns. Some locations were surveyed more than once over a period of years – however, only the most recent data are used for the analysis described below.

Since a 48-hour traffic count was collected from each ATR, results include a "Weighted" pavement condition for each town. By multiplying the Annual Average Daily Traffic (ADT) at each location times that locations' observed pavement condition, we then totaled these results and divided by the sum of Annual Average Daily Traffic from that town's ATR's. Annual Average Daily Traffic is calculated by multiplying the appropriate MassDOT monthly adjustment factor times the observed average daily traffic over the 48-hour ATR data collection period. The following table presents town-wide averages of the pavement condition information collected at ATR sites.

TABLE 5. Summary of Pavement Conditions at ATR Sites

TOWN	# OF SITES	AVG. AADT	AVG. CONDITION	WEIGHTED CONDITION
Barnstable	85	7,755	2.78	2.71
Bourne	52	4,945	2.81	2.76
Brewster	21	4,460	2.57	2.40
Chatham	41	5,205	3.12	3.14
Dennis	56	6,245	2.84	2.86
Eastham	22	2,490	3.32	2.85
Falmouth	68	6,815	2.90	2.88
Harwich	41	6,910	2.80	2.68
Mashpee	39	7,700	2.87	3.02
Orleans	35	5,660	2.69	2.56
Provincetown	28	4,140	2.86	2.88
Sandwich	65	5,510	2.98	2.89
Truro	40	2,380	3.15	2.93
Wellfleet	28	2,945	2.89	2.91
Yarmouth	68	7,370	2.72	2.72

Source: latest data available up to 2018 collected by Cape Cod Commission

See Table 1 for descriptions of pavement conditions (ranging from “Excellent” = 1 to “Poor” =5). Pavement conditions including comments and other ATR data for each of the 666 collection sites are presented in the appendix. The following figures are a graphical display of the individual site data for sections of Barnstable County (Upper Cape, Mid-Cape, and Lower Cape). The pavement condition at each ATR site is shown as a colored circle ranging from Blue (Very Good to Excellent) to Red (Poor).

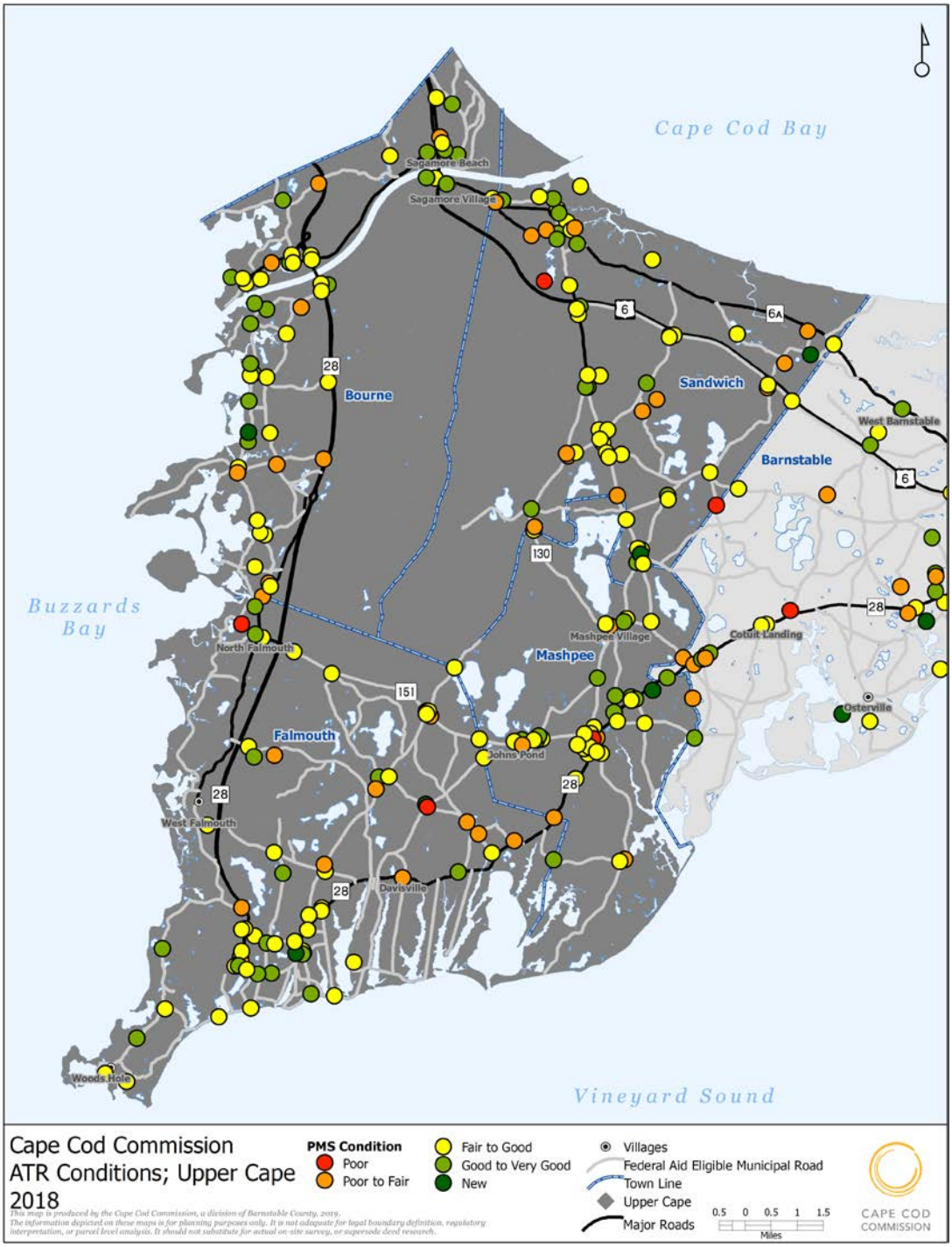


FIGURE 8. Pavement Conditions at ATR Locations: Upper Cape

Source: latest data available up to 2018 collected by Cape Cod Commission

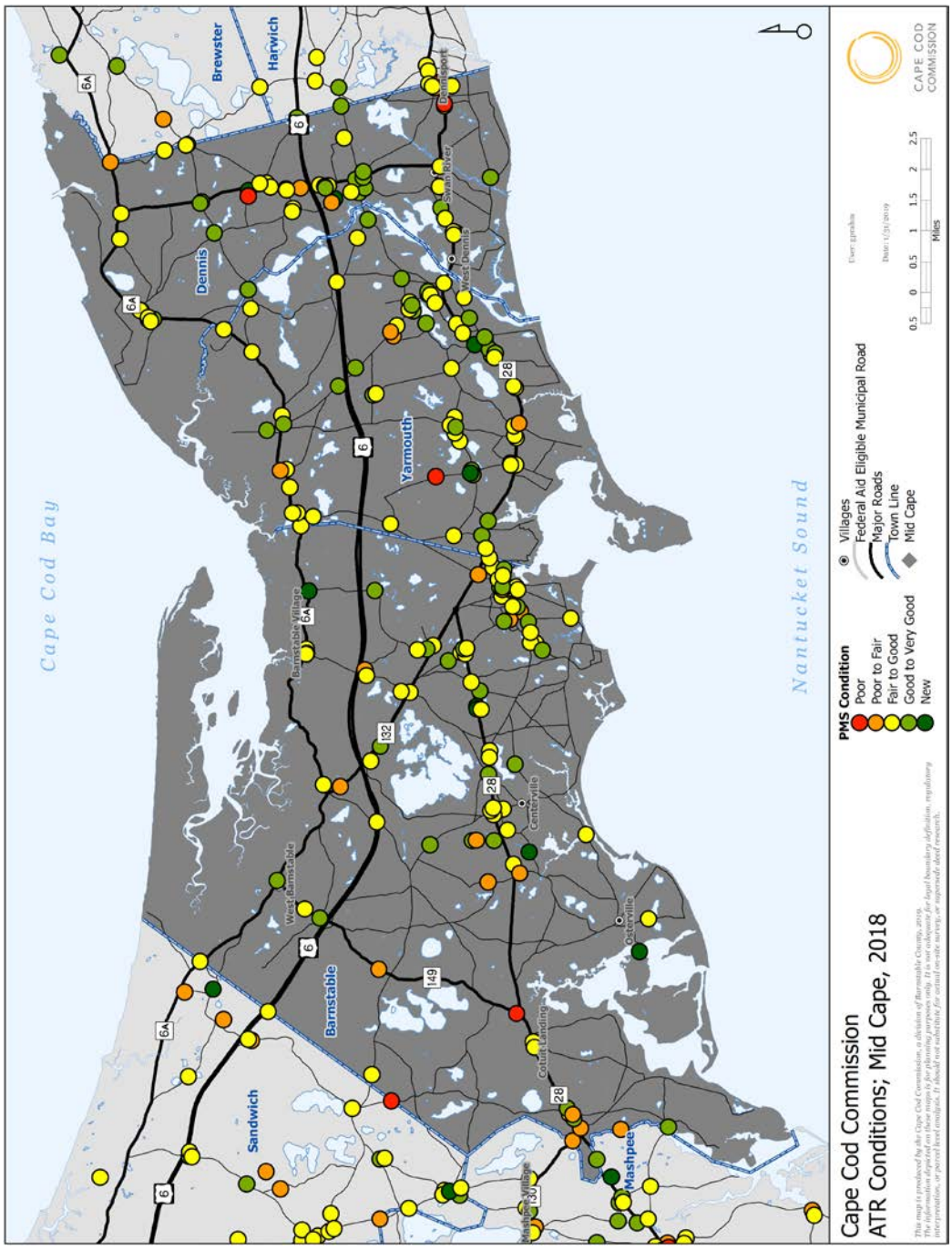


FIGURE 9. Pavement Conditions at ATR Locations: Mid-Cape

Source: latest data available up to 2018 collected by Cape Cod Commission

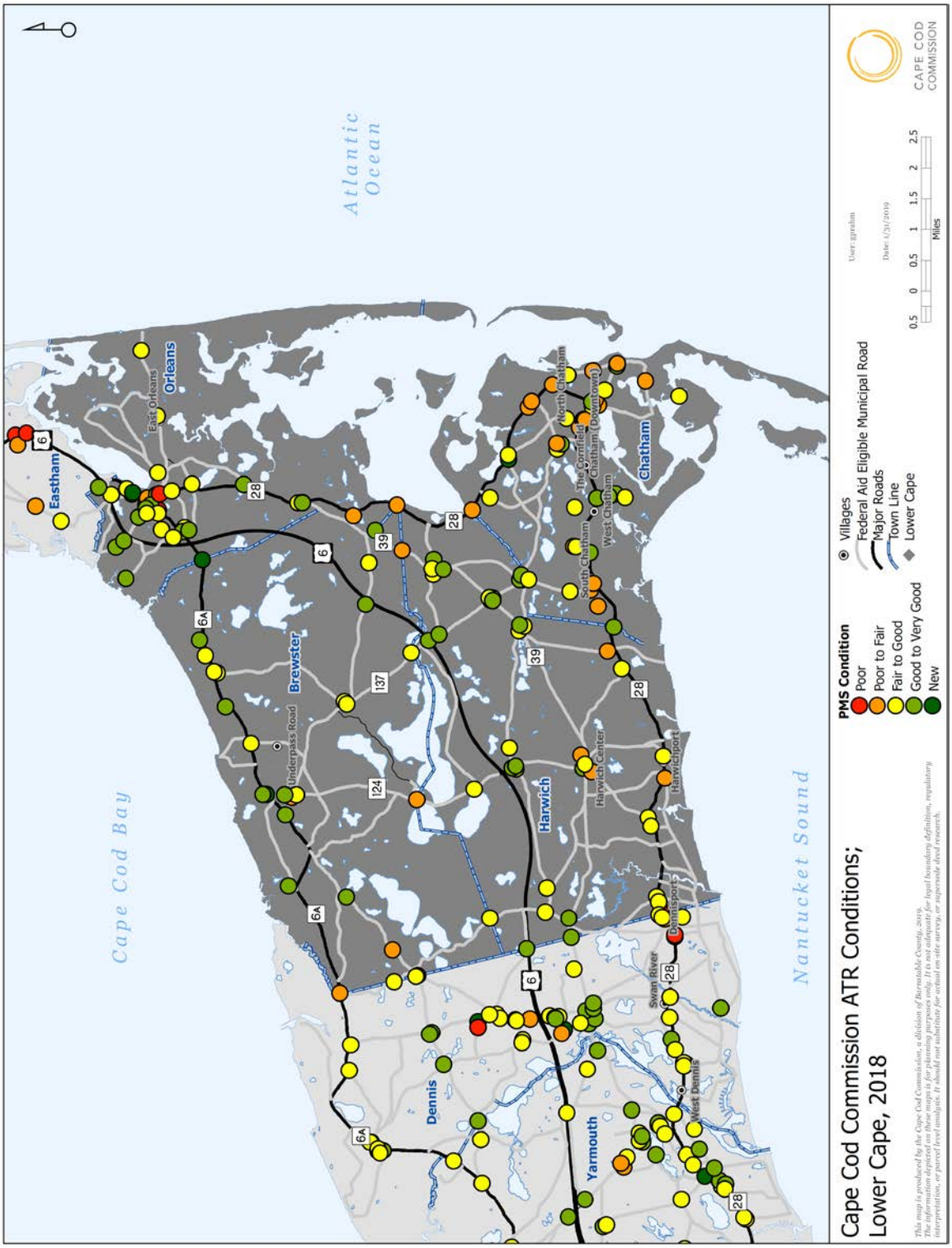


FIGURE 10. Pavement Conditions at ATR Locations: Lower Cape

Source: latest data available up to 2018 collected by Cape Cod Commission

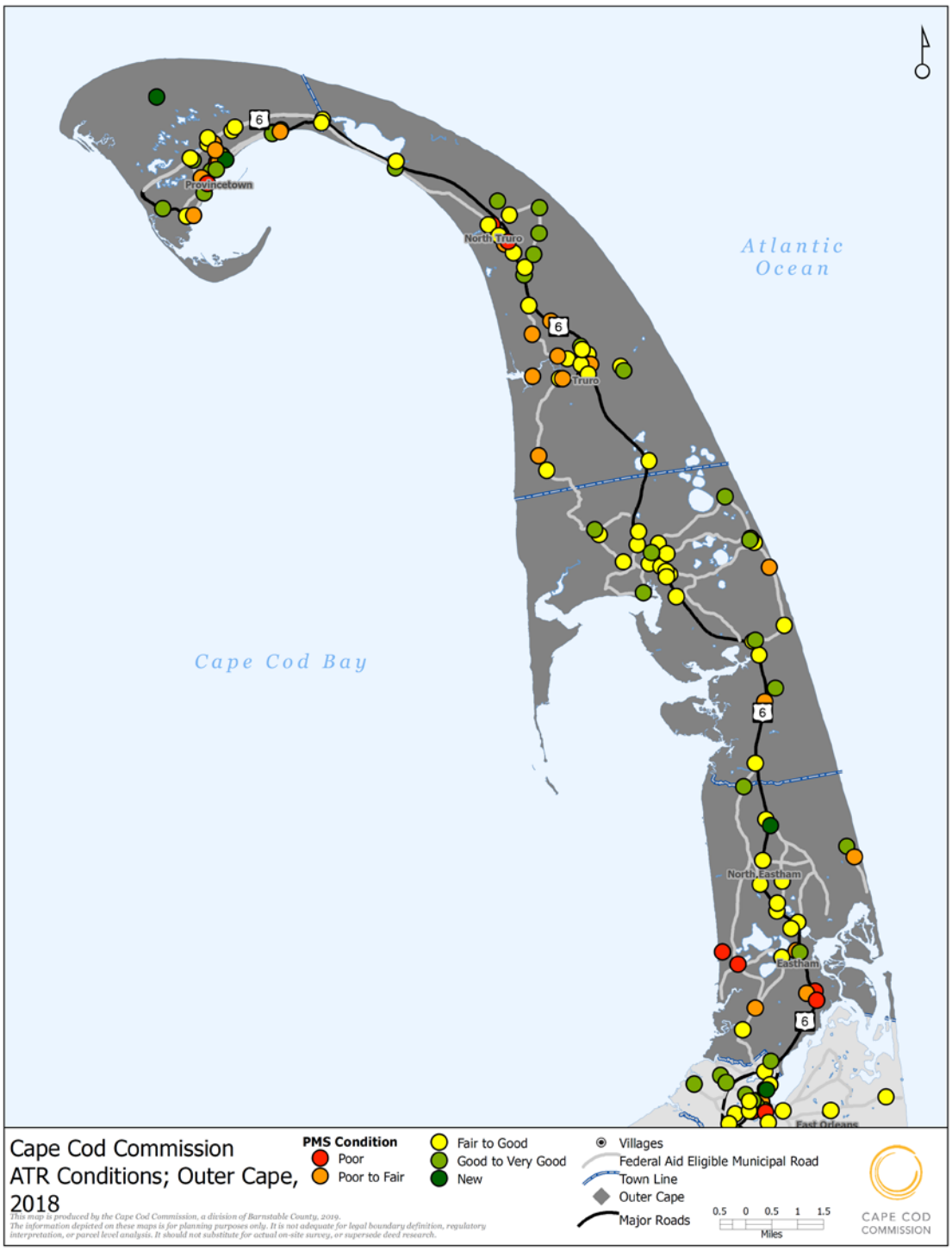


FIGURE 11. Pavement Conditions at ATR Locations: Outer Cape

Source: latest data available up to 2018 collected by Cape Cod Commission

RECOMMENDATIONS FOR ACHIEVING IMPROVED PAVEMENT CONDITION

The pavement deterioration curve shown in Figure 1 demonstrates the advantages of maintaining good roads to avoid expensive rehabilitation and reconstruction. For each level of Pavement Condition there is a corresponding Pavement Condition Index (PCI) – indicated by the column "PCI Start" in the table below.

By plotting the PCI for each condition level on the deterioration curve we can estimate the PCI after 5 years (this number corresponds to the 5-year "time bands" used in the Regional Transportation Plan for programming transportation projects). This is indicated by the column "5 Year – PCI No Repair" in the table below.

Repair strategies for each pavement "Starting Condition" vary according to starting PCI. For example, pavement currently categorized as "Good" or better (PCI greater than 89.0) may undergo "Maintenance" (e.g., crack-sealing, cleaning catch basins, etc.) with an associated modest cost per mile. Pavement currently categorized from Fair to Good (PCI of 80.5) would undergo "Rehabilitation" and a higher cost and pavement below Fair condition (PCI below 65.5) would require the most expensive repair of "Reconstruction." The estimated costs per mile for each repair strategy were originally estimated by the Old Colony Planning Council.

On average, pavement categorized as Good or above that is maintained would retain the same PCI. Pavement that is rehabilitated or reconstructed would on average achieve a PCI equal to "Very Good – Excellent" (PCI 96.5).

Therefore, it is possible to calculate a "Benefit" (i.e., the difference in the PCI between performing a repair and doing nothing). For example, if a segment of road is currently assessed to be at a PCI of 80.5 (Fair to Good) there are two possibilities: (1) rehabilitate the pavement resulting in an average PCI of 96.5 or (2) allow the pavement to deteriorate over the five-year time span down to a PCI of 29.7. In this case, the benefit of performing the repair (i.e., rehabilitation) is calculated to be the difference from 96.5 minus 29.7, or 66.8.

By relating the PCI Benefit of performing roadway repairs to the repair cost per mile, it is possible to calculate a Benefit/Cost ratio. These ratios are shown in the right-most column of the table below. To make the comparisons easier to review, the Benefit/Cost ratio of all the pavement conditions have be factored by 10,000.

TABLE 6. Change in Pavement Condition – Improvement Strategy

STARTING CONDITION	PCI START	5 YEAR - PCI NO REPAIR	REPAIR STRATEGY	REPAIR COST PER MILE	5 YEAR PCI REPAIR	PCI BENEFIT	BENEFIT / COST (SCALED BY 10,000)
Very Good to Excellent	96.5	83.6	Maintain-ance	$35,000	96.5	12.9	3.69
Good to Very Good	89.0	54.6	Maintain-ance	$45,000	89	34.4	7.64
Fair to Good	80.5	29.7	Rehabilit-ation	$100,000	96.5	66.8	6.68
Poor to Fair	65.5	22.2	Recon-struction	$550,000	96.5	74.3	1.35
Poor	27.5	16.6	Recon-struction	$554,000	96.5	79.9	1.44

The table above indicates that the most cost-effect repair strategy would be focused on performing maintenance on "Good to Very Good" roads with an estimated Benefit/Cost of 7.74, closely followed by performing rehabilitation on "Fair to Good" roads with an estimated Benefit/Cost of 6.68.

As a matter of policy, it is also recommended that funds be reserved to reconstruct a subset of "Poor to Fair" and "Poor" Roads.

The Cape Cod MPO is committed to exploring improved pavement management strategies and techniques to help optimize investment and achieve maximum improvement in overall PCIs.

CONCLUSION/RECOMMENDATIONS FOR PMS ENHANCEMENT

Cape Cod Commission staff will continue advance PMS activities throughout the fifteen towns of Barnstable County. Efforts will continue such as:

- Identify individual towns' methods for pavement condition evaluation and programming for improvements
- Identify "gaps" in pavement condition information on Municipally-owned Federal Aid eligible roadways – and – prioritize and implement CCC data collection activities on these roadways
- Improve CCC skills in performing pavement evaluations
- Analyze local communities' bid prices to develop Cape-specific improvement costs of various pavement conditions
- Generate listings of roadways with poor pavement conditions

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2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix K: Access to Essential Services and Regional Cooperation

JULY 15, 2019

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Technical Appendix K: Access to Essential Services and Regional Cooperation

ACCESS TO ESSENTIAL SERVICES

The essential housing, employment, healthcare, education, recreation and transportation services or facilities on Cape Cod are defined in this appendix chapter. The location of each service or facility is identified. Access to each service or facility for personal vehicles, transit, bicyclists or pedestrians is discussed. Transportation facilities and services are discussed in detail in the Existing Conditions appendix.

In order to improve access to and between these essential services the following will be address through various efforts outlined in this plan:

- Reduce congestion for all modes,
- Improve travel time reliability for all modes,
- Improve safety for all modes,
- Increase connections opportunities between different modes,
- Closing gaps in the bicycle and pedestrian network, and
- Improving transit options.

Vehicle Access on Cape Cod experiences distinct seasonal changes. During the summer months, July and August, roads are congested. The congestion is a result of the tourism industry and numerous second homes in the region. The winter months have less congestion, however roads can become dangerous in times of heavy snow. During spring and fall roads are less congested except during holidays. Many of the issues with vehicle access results from congestion or unsafe intersections. Congestion issues are discussed in the Congestion Management appendix item including maps that detail approximate Level of Service (LOS) at counted locations. Safety issues are discussed in the Safety appendix including a list of the top crash locations in the region.

The Cape Cod Regional Transit Authority (CCRTA) provides transit services on Cape Cod. Details on each of type of service can be found in the Existing Conditions Appendix. Total ridership for the CCRTA in FY2014 was over 1.2 million passengers The CCRTA offers year round fixed routes,

seasonal fixed routes, demand response and paratransit service trips. The fixed routes abide by a "flag system" policy, meaning that the bus can stop to pick passengers up if the passenger waves to the driver from a safe location along the route. Demand response services provide door to door trips at the prior request of a customer. Paratransit service provides door to fixed route bus stop trips or door to medical appointment trips. Fixed route stops are detailed in the discussion of access in this appendix but it is likely that other means of transit are available.

Bicycle and Pedestrian accommodation on Cape Cod consists of sidewalks, wide shoulders and multi-use paths. There are no existing designated bike lanes on Cape Cod. Two separated bike paths have frequent use and provide long distance connections, the Cape Cod Rail Trail (CCRT) extending from Dennis to Wellfleet and Shining Sea Bikeway extending through Bourne.

Access to and from Cape Cod

All long distance trips by vehicle, from outside the Cape Cod region are limited by functionally obsolete Sagamore and Bourne bridges that cross the Cape Cod Canal. The Sagamore and Bourne bridges are the only access point for vehicles, cyclists and pedestrians for long distance trips. During the summer and times which the bridges are under maintenance or in emergency situations multi-mile backups are common. This limits travel for those living near the bridges, commuters and vacationers. In this chapter interregional access to essential services is mostly discussed, however there is also access issues associated with travel in and out of the region.

Housing

Housing on Cape Cod is defined by the high percentage of seasonal homes or second homes, the high percentage of single family units and the reality that the average income of year round residents is well below the income necessary to own a home. This makes affordable housing facilities and services that help people find affordable living spaces essential. Four housing service organizations and three of the largest housing facilities are detailed below in terms of location and access.

SERVICES

Housing Assistance Corporation (HAC) is located on west road in Hyannis on West Main Street south of Route 28. Access to this location by automobile is affected by congestion. Several measured locations, including west of the intersection at West Main Street at Route 28 and locations near the Barnstable Municipal Airport received an LOS F rating. The CCRTA Sandwich line stops nearby on West Main Street at the Star Market approximately one quarter mile to the north. There are sidewalks on both sides of West Main Street.

Harwich Ecumenical Council for Housing (HECH) is located in Harwich on Sisson Road (Route 124 and Route 39) south of Route 6. Access to this location by automobile is not affected by congestion.

The nearest fixed route transit connection is at the Star Market stop on the H2O bus provided by the CCRTA approximately quarter mile to the south. This portion of Sisson Road has sidewalks on the west side of the road and the Cape Cod Rail Trail (CCRT) is located approximately three quarters of a mile to the north.

Community Development Partnership in Eastham is located on Route 6 in Eastham. This portion of Route 6 is two lanes in each direction undivided and affected by summer congestion. It is dangerous to turn left into the business due to the two lanes of opposing traffic. The nearest fixed route transit connection is on the Flex Route at Seaman's Bank under quarter mile to the north for southbound travel. For northbound travel the Flex Route stops at Bracket Road under a quarter mile to the north. This portion of Route 6 has sidewalks on the west side of the road. The Cape Cod Rail Trail is also located approximately a quarter mile from this location to the east.

Community Housing Resource Inc. in Provincetown is located on Commercial Street in Provincetown. This portion of Commercial Street in Provincetown is a one way street. In the summer Commercial Street is congested with pedestrians and bicyclist restricting access for vehicles. This location does not have parking and parking elsewhere Provincetown is limited and often at capacity. There is a transit stop located about quarter mile to the west at First Pilgrims Park and there is a sidewalk on the north side of the road.

FACILITIES

Cromwell Court is located in Hyannis on Barnstable Road and has 124 units. Access to this location by automobile is affected by congestion. The majority of roadway volume measurements within a quarter-mile received an LOS F. The Hyannis Transportation Center is approximately quarter mile from this location and both sides of the road have a sidewalk. The Hyannis Transportation Center is a stop for the Barnstable Villager, H2O, Sealine and Sandwich Line year round fixed routes, Hyannis Trolley seasonal fixed route and intercity buses.

The Rock Harbor Village located in Orleans on Rock Harbor Road includes 100 affordable units. Access to this location by automobile is not affected by congestion. There are fixed transit stops approximately quarter mile to the south at the CVS on the H2O route and FLEX. Both sides of the road have sidewalks and the Cape Cod Rail Trail is located nearby.

Senior Living Residences in Bourne is another large housing facility with 84 units located on County Road near the Otis rotary. Access to this location by automobile is not typically affected by congestion. The facility is located near the limited access portion of Route 28. There is a fixed route transit stop at the Senior Living Residences on the Bourne Run.

Employment Centers

Employment on Cape Cod is defined by the seasonal economy and several large employers. The table below identifies the top 10 employers on Cape Cod. The two facilities that employ between 1,000 and 4,999 people according to the Massachusetts database are Cape Cod Health Cape and Woods Hole Oceanographic Institution. Facilities that employ between 500 and 999 people according to the Massachusetts database are Air National Guard, Cape Cod Community College, Nantucket Airlines, Ocean Edge Resort, Steamship Authority, and the Woods Hole Steamship Authority. All other employers on Cape Cod are not recognized to have over 500 employees. Retail Centers also have a high number of employees. Many locations increase employment or are only open in the summer months. Accesses to facilities that employ over 1000 people and large retail centers are discussed below.

TABLE 1. Largest Employers on Cape Cod

EMPLOYER	RANGE OF EMPLOYEES
Cape Cod Healthcare Inc.	1,000-4,999
Woods Hole Oceanographic Inst.	1,000-4,999
Air National Guard	500-999
Cape Cod Community College	500-999
Nantucket Airlines	500-999
Ocean Edge Resort	500-999
Steamship Authority	500-999
Woods Hole Steamship Authority	500-999

Source: Infogroup

LARGE EMPLOYERS

Cape Cod Health Care has several locations including the Cape Cod Hospital, Falmouth Hospital. There are 20 total locations that include outpatient centers, cancer centers, senior services, Visiting Nurse Associations, and rehab centers across the Cape. Access to the two hospitals is detailed in the Healthcare Facilities sections below.

Woods Hole Oceanographic Institution (WHOI) is located in Woods Hole in Falmouth. Access to Woods Hole by personal vehicle can be difficult due to the geographic location. Woods Hole is the southwestern most part of the region and only road accessing this area is Woods Hole Road which deviates south from Route 28. Both Route 28 and Woods Hole Road experience year-round

congestion and several traffic volume measurements indicate a LOS F. Woods Hole is accessible by fixed route transit on the Sealine and seasonally on the WHOOSH Trolley. The majority roads surrounding the WHOI have sidewalks and the Shining Sea Bike Path is located under one quarter of a mile from the facility. There is ferry service to Martha's Vineyard from the Woods Hole Steamship Authority Terminal.

The employers with over 500 employees are listed below:

- The Air National Guard located on Joint Base Cape Cod and is accessed from various points in Bourne, Mashpee, Falmouth and Sandwich. The main access point to Joint Base Cape Cod is through the Otis Rotary in Bourne.
- Community College is located on Route 132 in Barnstable. Access issues associated with this facility are detailed in the Educational Facilities section of this appendix.
- Nantucket Airlines is located in Hyannis at the Hyannis Airport. Access issues associated with this facility are detailed in the Transportation Services section of this appendix.
- Ocean Edge Resort is located in Brewster on Route 6A. There are not significant access issues to this location.
- Steamship Authority is located in Hyannis and the Woods Hole Steamship Authority Terminal is located in Woods Hole. Access associated with both the Steamship Terminal locations are identified in the Transportation Services section of this appendix.

RETAIL CENTERS

The Hyannis area is home to high density retail. The center of retail is at the Cape Cod Mall located on Route 132. Also there are several shopping strip malls in the Hyannis area. Access by vehicle is limited by year round congestion. Numerous traffic volume measurements in Hyannis show a roadway LOS of F. There is transit service to many retail locations in Hyannis on the Barnstable Villager. Intercity busses and numerous other CCRTA fixed routes access the Hyannis Transportation Center. The Hyannis area is not assessable by bicycle but many of the roads have sidewalks.

Mashpee Commons is another high density retail location. The shopping center is located by the Mashpee Rotary on both sides of Route 151. Access to this location by personal vehicle is affected by congestion. Numerous traffic volume measurements near the Mashpee Rotary show a roadway LOS of F. There is a fixed bus stop on the Bourne Run and the Sealine at Mashpee Commons. Many roads around Mashpee Commons do not have sidewalks bicycle accommodations.

Healthcare

There are numerous health care services on Cape Cod including large and small practices. The location and access to the two largest hospitals and access to Boston Medical facilities are detailed below.

HOSPITALS

The Cape Cod Hospital is located in Hyannis south of Route 28 on Lewis Bay Road. In 2014, according to statistics provided by Cape Cod Health the hospital maintained 342 staffed beds, discharged 22,256 patients and handled over 118,000 emergency visits. Access by vehicle to this location is difficult due to year round congestion from all directions. The long distance travel has the most access issues because the majority of traffic accesses Cape Cod Health Care from Route 6 at Exit 7 to the north, then travels down Yarmouth road/Willow Street and Camp Street. The intersection of Yarmouth Road and Route 28 is one of the most congested and poorly functioning intersections on Cape Cod. There is not signal priority for emergency vehicles at this intersection. There fixed route transit stop located at Cape Cod Health Care on the H2O Route. The Hyannis Transportation Center, where numerous local and regional busses stop, is located a few blocks from the Hospital. The majority of roads in surrounding the Cape Cod Hospital have sidewalks. The steamship authority and HyLine ferry's terminals are located a few blocks away connecting patients from Nantucket and Martha's Vineyard.

Falmouth Hospital is located on Ter Heun Drive west of Route 28 in Falmouth. This hospital treats approximately 40,000 total patients per year. Access to this location by personal vehicle is affected by congestion. Traffic volume measurements on the majority of roads near the Falmouth Hospital including Route 28 and Jones Road showed roadway LOS of F. The intersection of Route 28 and Jones Road/Ter Heun Drive does include signal prioritization for emergency vehicles. The closest fixed route transit stop is at the Falmouth Bus Depot on the Sealine, over a half a mile away. Like the Cape Cod Hospital there are demand response services available to bring patients to the hospital. Ter Huen Drive and Route 28 do have sidewalks on one or both sides and the Shining Sea Bikeway is located under a quarter mile away.

Many Cape Cod residents also travel to Boston for medical service. Different methods of access include personal vehicle, transit. Severe cases are transported by medical flight using a helicopter. Demand response transit services are offered by the CCRTA that travel directly to the Boston Hospital for $15.00 each way. There are also numerous demand response services that will transport patients to health services on Cape Cod.

Education

Education facilities on Cape Cod include private and public K-12 school, technical high schools, higher education, and continued education. The table below shows the enrollment at each of Cape Cod's 19 school districts or independent. Access to the largest Cape Cod Community College, Massachusetts Maritime Academy and the high schools or independent schools in districts that enroll over 3,000 students is discussed below.

TABLE 2. Enrollment at Cape Cod Schools

SCHOOL DISTRICT/ INDEPENDENT SCHOOL	STUDENTS
Barnstable	4791
Bourne	1935
Brewster	478
Eastham	171
Falmouth	3351
Mashpee	1616
Orleans	218
Provincetown	125
Sandwich	2510
Truro	106
Wellfleet	105
Barnstable Community Horace Mann Charter Public (District)	290
Cape Cod Lighthouse Charter (District)	242
Sturgis Charter Public (District)	836
Dennis-Yarmouth	3025
Nauset	1508
Monomoy Regional School District	1891
Cape Cod Regional Vocational Technical	571
Upper Cape Cod Regional Vocational Technical	703

In terms of transit access, school busses exclusively transport students to and from school. Regional Transit Authorities are not legally able to provide trips to and from public schools. Private schools and colleges are allowed to use RTA bus systems as a means to transport students.

HIGHER EDUCATION

Cape Cod Community College is located in Barnstable on Route 132 north of Route 6. The programs offered include 32 associates in arts degrees, 32 associates in science degrees and 56 career certificates. The college estimates that approximately 7,300 individuals from all over southern Massachusetts enroll in courses each year. The college is located about one quarter mile north of Route 6 at Exit 6. Access by personal vehicle is limited by congestion and the nearest traffic volume measurement on Route 132 indicated a roadway LOS of F. The entrance and exit points on Route 132 have been identified as dangerous in a Road Safety Audit (RSA). The study recommended considering a modern roundabout or traffic signal, providing a walking path and sidewalks to connect the facility with the Exit 6 Park and Rider Lot, and improving signage and lighting. Currently the Barnstable Villager stops at the college and intercity buses stop at the park and ride lot located less than a mile to the south at the Route 6 Exit 6 park and ride lot. Route 132 has a sidewalk on the west side near the college.

Massachusetts Maritime Academy is located in Buzzards Bay, Bourne. Access to Buzzards Bay by automobile is limited by congestion. Numerous traffic volume measurements indicate a roadway LOS of F. The geographic location of Massachusetts Maritime provides only one access road, Taylor Point. There is a stop on the Bourne Run approximately one quarter mile from the Academy. Regional Buses and the weekend summer train the CapeFLYER stop at the same place the Bourne Run does. There are not sidewalks or bike paths on the roads that access Massachusetts Maritime Academy.

ACCESS TO K-12 SCHOOLS

Barnstable School District is the largest school district with 4,900 students. The high school is located on West Main Street in Hyannis. Access by vehicle is limited by congestion during the school year due to the schools proximity to Hyannis. The Sandwich Line and Sealine stop about one quarter mile to the west at the intersection of Route 28 and West Main Street. The Sandwich Line also stops about one quarter mile to the east at the Star Market on West Main Street. There are sidewalks in both directions and there is not bike accommodation along West Main Street. There is a second entrance to the north on Route 28 that provides connection to residential neighborhoods. The entrance on Route 28 also provides access to the Barnstable Senior Center and Barnstable Intermediate School. There is a multi-use path on the south side of Route 28 but there not safe crossing for those walking to school. The town of Barnstable is currently doing a study identify ways to improve access from Route 28.

Falmouth School district is the second largest school district with 3541 students enrolled. The high school is located on Gifford Street Extension, north of Brick Kiln Road. There is not a fixed route transit stop near this school. Access by vehicle to this location is not limited by congestion. There are sidewalks along the west side of Gifford Street Extension that terminates at the intersections to the north and south of the school.

Dennis-Yarmouth School District is the third largest school district in the region with 3044 students enrolled. The high school is located on Station Avenue Road. Route 6 is located to the north and Route 28 is located to the south. Access by vehicle can be limited by congestion. Traffic volume measurements near the intersection of Gifford Street at Brick Kiln Road show a roadway LOS of F. The closest transit stop is located on Route 28 over three quarters of a mile away. There is a sidewalk on the west side of Station Avenue.

Sandwich School District is the fourth largest school district with 3,017 enrolled students. The high school is located on Quaker Meeting House Road between Route 6A from to the north and Route 6 to the south. Access by vehicle to this location is not limited by congestion. The closest transit stop is located three quarters of a mile to the south on Quaker Meeting House Road. There is sidewalk on the east side of Quaker Meeting House Road.

Transportation

There are numerous transportation services provided by both private and public agencies on Cape Cod. Transportation services are essential to the region for reasons including the number of seniors needing assistance to medical appointments, congestion in the summer months or at the canal bridges, and access to the islands across the water. Access to services provided by the Cape Cod Regional Transit Authority, intercity and commuter buses, ferries and airports are discussed below.

CAPE COD REGIONAL TRANSIT AUTHORITY

The fixed routes had a ridership of 600,000 passengers in FY2014. Access to this type of service requires that passengers get to the stop locations without parking. In a survey conducted by the Regional Coordinating Committee, lack of sidewalks and other pedestrian facilities was identified by consumers as the number one barrier to transit services. Pedestrian access to transit stops varies at each location. The number of amenities such as shelters or bike racks also varies. The Cape Cod Commission staff is performing a study in 2015-2016 to identify locations to improve pedestrian access to transit stops.

The CCRTA offers several types of demand response services including Dial-A-Rider Transportation, Paratransit Service and coordinated service with health care facilities and Councils on Aging. Assess to the services depends on the type of service, however the bus will typically arrive curbside at houses or businesses if a request is made in the day prior.

The CCRTA office and the major transit hub on Cape Cod are located at the Hyannis Transportation Center. Access by vehicle to this location is limited by year round congestion. There are several access points to this location. From the north access is off Route 28 west of the Yarmouth Road at Route 28 intersection. Yarmouth Road and Route 28 is one of the worst functioning intersections on Cape Cod. The access point is unsignalized and does not provide an aesthetic entrance to the facility. It is difficult to take a left hand turn into this entrance because of the high volume of traffic on Route 28. The second access point is on Ridgewood Avenue. Access to Ridgewood Avenue is affected by congestion. The third access point is on Center Street north of the Main Street intersection. This location does not have significant access issues but it is less direct than the other access points. The CCRTA has conducted a Transit Oriented Development study to identify ways to improve the Hyannis Transportation Center in terms of access and development. The recommendations in this study include building a village center around the transit hub that includes commercial, residential and recreational facilities. Currently there are sidewalks on the roads accessing the Hyannis Transportation Center.

INTERCITY AND COMMUTER SERVICES

Intercity and commuter buses are essential to the Cape Cod economy because it allows individuals to live in the region and work in a location with more financial opportunity. Each carrier and bus facility is discussed in more detail in the Existing Condition Appendix of this report. Access to bus terminal and park and ride lots are detailed below. The intercity bus carriers on the cape are listed below.

- Plymouth and Brockton operates from Hyannis to Boston and Hyannis to Provincetown
- Peter Pan operates between Woods Hole and Boston, and Hyannis to Providence

The Falmouth Bus terminal is located on Depot Avenue west of North Main Street at the elbow of Route 28 in Falmouth near the Falmouth Hospital. Peter Pan Buses depart from this location. The Falmouth Bus Depot has limited parking and a poorly functioning facility. Access to this location by vehicle can be affected by congestion. There are sidewalks on both sides of Depot Avenue in this location and on both sides of North Main Street. The CCRTA busses that stop at this location include the Sealine and the WHOOSH Trolley in the summer months.

Macmillan Pier is located in Provincetown south of Commercial Street. This location is extremely congested with bicyclist and pedestrians in the summer months and parking is limited. The Plymouth and Brockton services this location with a connection to the Hyannis Transportation Center. There are sidewalks on the roads that access Macmillan Pier and the CCRTA FLEX route access the bus terminal.

The Park and Ride lots on Cape Cod are located north of the Sagamore Bridge, at Exit 6 on Route 6 and Exit 10 on Route 6. These lots are free to park in, resulting in frequent use by carpoolers that

are not commuting. Parking at the Exit 6 and Sagamore lots is often at capacity. The Exit 6 and Sagamore Lots are serviced by intercity buses traveling to Boston. The exit 10 is a stop on the Plymouth and Brockton Hyannis to Provincetown route. Vehicle accesses to the lots are not affected by congestion because the lots are located near limited access highways. The Sagamore Lot has CCRTA service on the Sandwich Line and Bourne Run. The Exit 6 Lot the does not have a fixed route CCRTA transit stop. The exit 10 lot does not have CCRTA fixed route service.

The CapeFLYER train is available for people traveling from Boston to Cape Cod in the summer months on the weekends. The train includes bicycle storage and dining services. The train travels from the city, stops at several locations on the way to Cape Cod. On Cape it stops in Buzzards Bay and in Hyannis at the Hyannis Transportation Center. The stop in Buzzards Bay has access restrictions including congestion and limited parking. There is a stop on the Bourne Run transit route and there is a service that connects this parking location to the Falmouth Bus Depot.

Commuters also have access to commuter rail stations in Kingston and Lakeville provided by the MBTA. These stations are outside of the MPO region. The trip to both can be affected by congestion due to the issues crossing the Cape Cod Canal.

FERRIES

The Woods Hole Steam Ship Authority Terminal is located in Falmouth on Woods Hole Road near the Woods Hole Oceanographic Institute. Access by vehicle is limited by congestion and parking. There are sidewalks on the roads that access the Woods Hole Steamship Authority Terminal. The CCRTA fixed route Sealine and seasonal fixed route WHOOSH Trolley access this location. The Boston to Woods Hole commuter bus stops at this location. The Shining Sea Bike Path terminated at this location.

The Hyannis Steamship Authority and Highline Ferry terminals are located in Hyannis on the Lewis Bay Waterfront near the Cape Cod Hospital. Access by vehicle is limited parking and congestion. There are sidewalks on the roads that access both ferry terminals. The CCRTA does not have year round fixed route transit stops at this location but does offer seasonal stops at both ferry terminals on the Hyannis Trolley.

Macmillan Pier is another location that has ferry service provided by Bay State Cruise Company. The Provincetown Ferry travels from Provincetown to Boston. This access to this location was discussed in the Intercity and Commuter Bus section of this appendix.

AIRPORTS

Cape Cod has two airports with several scheduled passenger service and several smaller airports. Access to the commercial airports is detailed below. The functionality of the airports is discussed in the Existing Conditions Appendix.

Barnstable Municipal Airport is the largest airport on Cape Cod. It is located in Hyannis north of the Airport Rotary. There are several access points for vehicles including through airport road north of Route 132, through Hinckley Road north of Route 132, or the terminal entrance east of the airport rotary on Route 28. Traffic leaving the airport can join airport rotary traffic through a one way street. Congestion associated with Hyannis affects vehicle access. There are not sidewalks on many of the roads accessing the airport including Route 28 and Route 132. There is not a fixed route transit stop provided at this location by the CCRTA. A prior transit stop was discontinued due to low ridership generation at the airport.

Provincetown Municipal Airport is located on Province Lands Road in Provincetown. Access by vehicle is not affected by summer congestion. There are not sidewalks on the roads near the airport but the Province Lands Bike Path crossed the vehicle entrance to the airport. There is not a CCRTA year round fixed route stop here but there is a stop on the seasonal fixed route service the Provincetown Beach Shuttle.

Access Improvements

The essential services on Cape Cod can be limited by congestion or unsafe conditions as identified in this appendix item. The location of essential services and a brief description on the access for vehicles, pedestrians, transit and bicyclists has been identified. There are several transportation projects that would significantly improve access to the essential services.

Access restrictions due to the functionally obsolete Sagamore and Bourne Bridges are identified as a barrier to the entire region. During summer months and periods of bridge maintenance the bridge traffic can be backed up multiple miles. Projects which could improve access across the Cape Cod Canal are regarded as improving access to essential services including improvements to the Bourne Rotary, Belmont Circle, Sandwich Road, and projects including Route 6 exit 1 reconfiguration, replacement bridges, or an additional crossing.

Hyannis is the most urbanized region of Cape Cod and home to several essential services identified in this appendix including:

- Housing Assistance Corporation (HAC),
- Cromwell Court housing facility,
- Dense retail shopping centers
- Cape Cod Hospital and other Cape Cod Health Care Facilities
- Barnstable High School
- Hyannis Transportation Center,
- Barnstable Municipal Airport
- Steamship Authority and Hy-Line ferry terminals.

Projects have been identified that could improve access to Hyannis in recent studies including the Hyannis Access Study, Hyannis Access Implementation Study, and Yarmouth Road Study. The Yarmouth Road Study identified the potential improvements along Yarmouth Road between Higgins Crowell Road and Route 28, including a multi-use path and two additional lanes of travel. The Hyannis access study and Hyannis Access Implementation Study identified improvements at the intersection at Yarmouth Road and Route 28, Route 28 between Yarmouth Road and the Airport Rotary, and at the Airport Rotary. The improvements at the Airport Rotary include an underpass for critical directional volumes. The intersection of Yarmouth Road and Route 28 is currently programed through the Transportation Improvement Program (TIP).

Other areas that were identified to have access issues to essential services include at the Mashpee Rotary, in the Woods Hole Area, the southwest elbow of Route 28 in Falmouth, Provincetown, and along Route 6 in the Outer Cape. These roadways should be further investigated for proposed improvements and opportunities to study.

REGIONAL COOPERATION

Regional Partners

Development of the RTP and other planning efforts include consultation with or consideration of a wide-range of federal, state, and local agencies and organizations including:

- Barnstable County Government
- Bay Colony Railroad
- Cape Air
- Cape Cod Central Railroad
- Cape Cod Commission
- Cape Cod Joint Transportation Committee
- Cape Cod Metropolitan Planning Organization
- Cape Cod National Seashore (National Park Service)
- Cape Cod Regional Transit Authority
- Cape Cod Towns
- Federal Highway Administration
- Federal Transit Administration
- Hy-Line Cruises
- Joint Base Cape Cod
- Martha's Vineyard Commission
- Massachusetts Department of Recreation and Conservation
- Massachusetts Department of Transportation
- MassBike
- MassRides
- Nantucket Air
- Nantucket Planning and Economic Development Commission
- Old Colony Planning Council
- Freight Companies
- Peter Pan – Bonanza Bus Lines
- Plymouth and Brockton Street Railway Company
- Southeastern Regional Planning and Economic Development District
- U.S. Army Corps of Engineers
- Woods Hole, Martha's Vineyard and Nantucket Steamship Authority

Urbanized Area Boundaries

Cooperation across Cape Cod Metropolitan Planning Organization (MPO) Boundaries occurs through meeting and consultation on studies. The Cape Cod borders both the towns of Wareham and Plymouth. The Barnstable Town Urbanized Area, defined by the 2010 census, extends into the abutting regional planning districts, Old Colony Planning Council (OCPC) and Southeastern Regional Planning and Economic Development District (SRPEDD). In some cases federal funds are distributed to Urbanized Area (UZA) requiring coordination on planning efforts. When this occurs coordination meeting are organized and Cape Cod Commission Staff may attend MPO meetings in these MPO districts.

The neighboring regional transit authority, Greater Attleboro Taunton Regional Transit Authority (GATRA) operated a fixed route service into the Buzzards Bay area. This agency is consulted when planning studies reach across the MPO boundary. Most recently this occurred in the Coordinated Public Transit- Human Service Transportation Plan because this plan released transit funds that were distributed to UZA districts, of which the GATRA and CCRTA service area are included.

Metropolitan Planning Organization

There are several meetings facilitated or frequently attended by the Cape Cod Metropolitan Planning Organization Staff that promote coordination.

Cape Cod MPO meeting are held monthly and in attendance representatives from four sub regions in Barnstable County, MassDOT Secretary/CEO, MassDOT Highway Division Administrator, Chair of the Cape Cod Commission Chair of the Cape Cod Regional Transit Authority Advisory Board, President of the Barnstable Town Council, and the Tribal Chairman of the Mashpee Wampanoag Tribal Council. Sub region A consists of the town of Bourne, Falmouth, Mashpee, and Sandwich. Sub region B includes the town of Yarmouth and Dennis. Sub region C includes the towns of Brewster, Harwich and Orleans. Sub region D includes the town of Eastham, Wellfleet, Truro and Provincetown. The MPO is formed and abides by rules established under a formal agreement in the form of a Memorandum of Understanding (MOU). MPO meetings are attended by the public.

The Joint Transportation Advisory Committee (JTC) is an advisory committee to the Cape Cod MPO. The committee is made up of representatives from each town, often a director of the town Department of Public Works (DPW) or the town engineer. Materials presented before the MPO are often presented first to the JTC to receive local feedback and to recommend action by the MPO. JTC meetings are attended by the public.

Coordination on Cape Cod

The CCRTA hosts monthly Multi-Modal Meetings, quarterly advisory board meetings and Regional Coordination Committee (RCC) which Cape Cod MPO staff attends. The Multi-Modal meetings are regularly attended by representatives from the Barnstable Municipal Airport, Steamship Authority, Hy-line, Plymouth and Brockton Street Railway Company, Town of Barnstable, Cape Cod Chamber of Commerce, State Legislation Representatives. The advisory board consists of representatives from each town and meetings are attended by various interested agencies. The RCC includes various members of human service agencies on Cape Cod. CCRTA staff and Cape Cod MPO staff also meet as frequently as bi-weekly to discuss planning efforts.

The majority of the east coast of Cape Cod is owned and managed by the National Park Service. Transportation issues that affect the National Park are discussed with their staff. Recently this agency was engaged to coordinate data collection for bicycles, the conduction of the Outer Cape Bicycle and Pedestrian Master Plan and for safety upgrades for Route 6 in Wellfleet resulting in the implementation of rumble strips on the centerline of the roadway.

Statewide Coordination

Coordination with the state transportation department, MassDOT occurs through many means including MPO and JTC meetings. Conversation with the state department is constant in planning efforts to determine scopes of work, or impacts to local character. There are been several recent large studies that have been performed in coordination between the MPO staff and MassDOT including the Hyannis Access Study, Bourne Rotary Study and the Canal Area Study. In all three of these studies data collection, public outreach was coordinated in addition to consistent consultation on the outcomes and conduction of the study.

The Cape Cod MPO staff also coordinates with other state departments. In planning efforts to extend commuter rail to Buzzards Bay the Cape Cod MPO staff consulted with the Central Transportation Planning Staff and the MBTA. These groups lead their own investigation into the feasibility of providing the service.

The Cape Cod MPO staff attends state wide meetings with the Massachusetts Association of Regional Planning Agencies (MARPA) and Transportation Managers Group (TMG). MARPA meetings are attended executive directors from each of the thirteen planning agencies in Massachusetts and statewide and local planning issues including but not limited to transportation are discussed. TMG meetings are attended by transportation directors at regional planning agencies to discuss statewide and local transportation issues. The islands south of the Cape Cod region, Nantucket and Martha's Vineyard have representation at these meetings. At this time critical transportation coordination with these regions may be discussed.

Road Safety Audits (RSA) is performed by Cape Cod MPO staff or private consultants. A RSA is performed to identify problems are intersection and roadways and establish long and short term solutions. At these events Cape Cod Commission staff, MassDOT staff, and town staff are present. The resent RSAs performed on Cape Cod are listed in the Safety appendix item.

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix L: Title VI/Nondiscrimination Program

JULY 15, 2019

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Technical Appendix L: Title VI/Nondiscrimination Program

The Cape Cod Metropolitan Planning Organization (MPO) follows federal and state non-discrimination laws and seeks to ensure that all interested parties in Barnstable County have access to the MPO's activities and services and that public involvement in the MPO's decision making comes from a diverse socioeconomic group that is representative of the county's population. The MPO has developed a nondiscrimination program, in accordance with federal and state requirements, to encourage broad public participation, representation, and equity in the region's transportation planning.

TITLE VI BACKGROUND

Title VI of the Civil Rights Act of 1964 prohibits discrimination based on race, color, or national origin.[1] Organizations that receive Federal funds are obligated to assure nondiscrimination in their programs and activities and are required to have a comprehensive Title VI enforcement program to prevent and eliminate discrimination in their federally funded programs. Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) set forth Title VI compliance requirements for "primary" funding recipients such as MassDOT and sub-recipients such as the MPOs to follow. Effective transportation decision making depends upon understanding and properly addressing the needs of different socioeconomic groups. The MPO's Title VI program includes identifying the demographic distribution of minority and limited English proficiency populations within the region and implementing a comprehensive strategy to ensure that the MPO conducts effective outreach to encourage their involvement in and access to the transportation planning and decision-making process.

The Massachusetts Department of Transportation (MassDOT) is responsible for ensuring that the state's MPOs comply with federal program requirements. Following MassDOT's 2013 Title VI program update, the Cape Cod MPO developed and adopted a Title VI Program in 2014. The Title VI plan provides information about beneficiaries' rights, how to file a complaint, regional demographic

[1] "No person in the U.S. shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under a program or activity receiving financial assistance." [Civil Rights Act 1964]

data, maps, a public participation plan, a language access plan, and analyses of transportation spending in the region, project locations and potential impacts from projects to ensure equity in the planning and implementation process for the region.

Although Title VI is the focal point of non-discrimination law in the United States, FHWA incorporates a broader spectrum of statutes, executive orders, and regulations into its requirements for states and MPOs. For example, Section 324 of the Federal-Aid Highway Act of 1973 prohibits discrimination based on sex; Section 504 of the Rehabilitation Act of 1973 prohibits discrimination on the basis of disability status, as does the Americans with Disabilities Act of 1990; and the Age Discrimination Act of 1975 prohibits age discrimination. In addition, the Civil Rights Restoration Act of 1987 (FHWA Notice 4720.6) clarified the original intent of Congress with respect to Title VI by restoring the broad, institution-wide scope and coverage of the nondiscrimination statutes to include all programs and activities of federal-aid recipients and enforcing the application of the laws that include nondiscrimination on the basis of race, color, national origin, age, gender, or disability.

In addition to mapping demographic data that identifies areas (census blocks) in the county with higher proportions of low income and minority populations, the staff conducts analyses on the geographic distribution region's transportation spending and project construction, to ensure equity in the distribution of transportation improvements. In examining the Title VI based project distribution analysis, the proximity, frequency, value and nature of projects are identified in relation to statistically significant population concentrations of the Title VI protected categories; i.e. race, color or national origin(including limited English proficiency) for transit related projects with the addition of age, sex and disability for highway related projects. The analysis also includes a review of potential project impacts – positive and negative – to ensure that that potentially underserved areas neither adversely impacted by, nor denied the benefits of, transportation projects. A key piece of the program is engaging such communities in the MPO's activities and decision making through expanded and targeted public outreach. The Public Participation Plan, as discussed below, establishes the MPO's public involvement goals and strategies.

PUBLIC PARTICIPATION PROCESS

To ensure an inclusive and accessible public engagement processes for development of the Regional Transportation Plan (RTP), staff looked to the framework established in the Cape Cod MPO Public Participation Plan (PPP). Goals of the PPP are to:

1. Obtain Quality Input and Participation
 The MPO staff worked to fulfill this goal by holding public meetings across the entire region including meetings on the Upper, Mid, Lower, and Outer Cape regions. These meetings were intentionally scheduled at different times of the day and at many different locations to enable greater participation. Input received from the public during the development of the plan was incorporated into the draft plan. Comments received during the 30-day public comment period were considered by the MPO at their July 20, 2015 public meeting and the document was revised in response to the comments as recommended by the MPO.
2. Establish Consistent Commitment
 The MPO staff made a concerted effort to communicate with the communities as it developed and implemented its outreach for the RTP. Part of this effort was building community capacity to provide comment. This included but was not limited to seeking additional venues for public input such as conducting open houses seeking comments at the Hyannis Transportation Center (which enabled passing transit users based upon their familiarity with the transit system to provide detailed comments), creating and hanging signs on Cape Cod Regional Transit Authority (CCRTA buses) in English and Portuguese (which informed the wide ridership public about the RTP and their ability to comment), providing tweets on its Twitter account in both English and Portuguese about the RTP and their opportunity to comment.
3. Increase Diversity
 The rollout of the outreach involved for this RTP further engaged the community. In an effort to increase participation, MPO staff sought input from a range of socioeconomic perspectives and traditionally underserved people.
4. Ensure Accessibility
 Every effort was made to ensure participation opportunities were accessible for all.
5. Provide Relevance
 The message developed for outreach on the RTP was "what is YOUR vision for Transportation on Cape Cod?" The intent was to frame the issue clearly and simply to involve the greatest number of participants.
6. Foster Participant Satisfaction
 Recognizing that people who take the time to participate feel it is worth the effort to join the discussion and offer feedback, the MPO staff made certain that there was a Portugese translator at the added public outreach events in which the analysis showed potential for greater participation. Staff also was readily available to receive the input as it arose in the meetings/open houses and provide that feedback to the MPO.

7. Clearly Define Potential for Influence
 The process identified that the comments made would be transmitted to the MPO members who, per the Public Participation plan, would directly consider such comments.
8. Establish and Maintain Partnerships
 The MPO staff, working to expand its outreach, developed a broader base in which to connect on the RTP. This included the following groups:
 - Community & human services programs and providers
 - Community centers
 - Councils on aging
 - Day care and child development programs
 - English language media outlets (print and audio)
 - Financial institutions
 - Fire districts
 - Hospitals and health centers
 - Interested citizens (those who requested to be included in the list)
 - lesbian, gay, bisexual, and transgender (LGBT) organizations
 - Libraries
 - Local and area chambers of commerce
 - Local and regional housing partnerships, authorities, and groups
 - Local and regional transportation providers (all modes)
 - Local community-based organizations
 - Local financial development corporation and economic development corporations
 - Local legislators
 - Local police and fire departments
 - MPO and CCJTC members
 - Portuguese language media (print and radio)
 - Public and private educational institutions and school departments
 - Religious institutions
 - Town clerks, managers, departments of public works directors, town planners, and other similar town personnel
 - Town councils
 - Transportation consulting firms
 - Veterans services

9. Provide Opportunities to Build Consensus
 The MPO discussions were structured to allow for conflicting views to be aired with the eye to satisfy the greatest number of community concerns and objectives.

The PPP is available in English and Portuguese at www.capecodcommission.org/ppp

Meetings and Open Houses

Numerous meetings have been held to discuss development of the RTP. Table 1 identifies meetings held solely for the plan, as well as meetings of various organizations at which the RTP was discussed. Meeting locations where selected to provide geographic and demographic diversity as well as ensure that persons with disabilities were able to actively participate. CCRTA DART paratransit services were available to bring interested parties to meetings. Notices were disseminated to English and Portuguese media outlets.

TABLE 1. Regional Transportation Plan Meetings

CAPE COD METROPOLITAN PLANNING ORGANIZATION MEETINGS		
Meetings beginning in August 2018 and continuing through July 2019 Generally held once per month on a Monday at 1:00 PM, Cape Cod Commission Office, Barnstable		
CAPE COD JOINT TRANSPORTATION COMMITTEE MEETINGS		
Meetings beginning in September 2018 and continuing through June 2019 Generally held once per month on a Friday at 8:30 AM, Cape Cod Commission Office, Barnstable		
LISTENING SESSIONS/OUTREACH TABLE EVENTS/PUBLIC MEETINGS LOCATION	**DATE**	**TIME**
Eastham Town Hall – Listening Session	Tuesday, February 5	5:00 PM
Mashpee Library – Listening Session	Wednesday, February 6	5:00 PM
Hyannis Transportation Center – Listening Session	Thursday, February 7	2:00 PM
Bourne Cape Cod Canal Bike Path – Outreach Table at Bike Week Event	Monday, May 13	3:00 PM
Hyannis Transportation Center – Outreach Table at Bike Week Event	Tuesday, May 14	8:00 AM
Yarmouth Cape Cod Rail Trail at Station Avenue – Outreach Table at Bike Week Event	Wednesday, May 15	3:00 PM
Orleans Cape Cod Rail Trail at Main Street – Outreach Table at Bike Week Event	Monday, May 16	3:00 PM
Falmouth Public Library – Outreach Table	Wednesday, May 22	6:30 PM
Provincetown Veteran Memorial Community Center – Public Meeting	Monday, June 3	5:00PM
Hyannis Transportation Center – Public Meeting	Wednesday, June 5	10:00 AM
Sandwich Town Hall – Public Meeting	Wednesday, June 5	5:00PM

OTHER MEETINGS/ACTIVITIES LOCATION	DATE	TIME
Lower Cape Regional Bicycle Committees – Harwich Town Hall	Tuesday, January 15	5:00 PM
Cape Cod Commission/Cape Cod Metropolitan Planning Organization Joint Meeting – RTP Presentation and Discussion	Wednesday, January 21	3:00 PM
Eastham Route 6 Study Public Meeting	Wednesday, February 27	5:00 PM
Wellfleet Bike & Walkways Committee – RTP Presentation and Discussion	Wednesday, March 27	2:00 PM
Sierra Club Cape Cod Group – RTP Presentation and Discussion	Monday, April 8	5:00 PM
Mashpee Rotary Study Public Meeting	Thursday, April 11	1:00 PM
Mashpee Rotary Study Public Meeting	Thursday, April 11	5:00 PM
Cape and Islands Association of Realtors Leadership Institute – RTP Presentation and Discussion	Tuesday, April 30	10:00 AM
Bourne Town Administrator's Advisory Committee on Pedestrian Bicycle Pathway - Bourne Rail Trail Public Informational Meeting	Wednesday, May 1	6:00 PM

Collectively, the RTP meetings provided a wide array of opportunities for the public to learn about the document and share their comments. Comments received reflected both regional interests in the Cape Cod transportation system as well as more location specific concerns based on the location of the meeting.

Figure 1 shows a collection of photographs that were taken at various RTP outreach events.

FIGURE 1. Photographs of Outreach Activities



Other Outreach Strategies

In addition to the traditional outreach approaches, staff utilized a number of new strategies in an effort to increase public participation.

EXPANDED EMAIL OUTREACH DISTRIBUTION

In an effort to better connect with the various groups and agencies in the region that interact in different ways with the transportation system every day, an expanded email distribution list was created to share all notices and announcements on the development of the plan. This expanded outreach list including the following groups and agencies that were identified in the region:

- Community & human services programs and providers
- Community centers
- Councils on aging
- Day care and child development programs
- English language media outlets (print and audio)
- Financial institutions
- Fire districts
- Hospitals and health centers
- Interested citizens (those who requested to be included in the list)
- lesbian, gay, bisexual, and transgender (LGBT) organizations
- Libraries
- Local and area chambers of commerce
- Local and regional housing partnerships, authorities, and groups
- Local and regional transportation providers (all modes)
- Local community-based organizations
- Local financial development corporation and economic development corporations
- Local legislators
- Local police and fire departments
- MPO and CCJTC members
- Portuguese language media (print and radio)
- Public and private educational institutions and school departments
- Religious institutions
- Town clerks, managers, departments of public works directors, town planners, and other similar town personnel
- Town councils
- Transportation consulting firms
- Veterans services

PORTUGUESE-LANGUAGE COMMENT LINE

In an effort to ensure that anyone with questions or comments on the plan was heard, a Portuguese-language comment line was set up to field calls from Portuguese-speaking individuals. The recorded message, in Portuguese, thanked the caller for their interest in the plan and asked that they leave their name and number so that staff, with the assistance of a translator, could respond to them.

PLAN WEBSITE AND SURVEY

The website dedicated to the development of the 2020 RTP was created as a place where members of the public could find general information about the plan development, learn about upcoming meeting, access materials from past meetings, complete the online survey, download the draft RTP, and provide comments. A link to the website was included on all project materials and linked from the Cape Cod MPO website. Each page of the website included a statement in Portuguese with contact information should they need the information in another language. A Portuguese-language version of the website was also provided through real-time Google translation.

BUS SIGNS

In addition to hosting an open house at the Hyannis Transportation Center, a regional intermodal hub, further efforts were made to ensure that transit riders had an opportunity to participate in the development of the document. Signs, as shown in Figure 2, were placed on all Cape Cod Regional Transit Authority buses and paratransit vehicles. The message on the sign was presented in both English and Portuguese.



FIGURE 2. Bus Signs

OUTREACH CARDS AND OTHER MATERIALS

Business card-sized outreach cards were developed to hand out at all public events attended by staff during the development in the plan. A few versions were created through the process,

including a version to guide people to the online survey, but included a link to the website where information was kept up to date. Similar information was contained on water bottles and a banner used in outreach activities.

SELECTION PROCESS FOR HIGHWAY REGIONAL TARGET PROJECTS

Of the funding represented in the plan, a portion is available for "regional target projects." These are projects that the Cape Cod MPO has jurisdiction to select and prioritize. To ensure equity in the prioritization of these funds, Title VI and other equity considerations were incorporated in both the screening and analysis phases of the project selection process.

Screening of Highway Regional Target Projects

In order to determine the projects to be contained within the financially constraint of the document, analysis was conducted on the universe of projects (includes all potential projects identified during the development of the document). Analysis of projects was limited to projects $10 million or greater as staff determined this is the scale of project appropriate for specific inclusion in this document. Analysis was conducted with a subcommittee of the Cape Cod Joint Transportation Committee (CCJTC, an advisory body to the Cape Cod MPO) where each project was considered for potential benefit, estimated cost, consistency with the objectives of the RTP, equity as it relates to minority, low income, Limited English Proficiency (LEP) and other protected populations, and GHG reduction potential. Considering these factors and the anticipated available funding, a financially-constrained program of projects was developed with the CCJTC subcommittee, reviewed by the CCJTC, and ultimately endorsed by the Cape Cod MPO.

Analysis of Highway Regional Target Projects

Following the screening process, a more detailed analysis of potential impacts (positive or negative) on low income, minority, and LEP populations was conducted as presented in Error! Reference source not found..

Of the approximately $138 million programmed for specific projects, approximately 61% was on projects within and proximate to minority populations, 84% was on projects within and proximate to low income populations, and 72%, was on projects within and proximate to LEP populations. Given the regional nature of these projects, even projects that are not proximate to these identified population are likely to positively impact these identified populations as they travel through these locations to access regional services. This represents an investment in transportation infrastructure serving these areas proportionally higher than other areas on Cape Cod. In summary, the areas with higher proportions of low income and minority populations see more transportation dollars spent than other areas on Cape Cod.

TABLE 2. Highway Regional Target Projects – Income, Minority, and LEP Population Impacts

PROJECT	LOW INCOME [I], MINORITY [M], OR LIMITED ENGLISH PROFICIENCY [LEP] POPULATION AREA PROXIMATE	NATURE OF IMPACT ON LOW INCOME, MINORITY, OR LEP AREA
Mashpee: Route 151	M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Route 28 Multimodal Improvements: Various Locations	TBD	Improved bicycle/ pedestrian access, safety
Rail Trail Extensions (Mid- and Upper-Cape)	I, M, LEP	Improved bicycle/ pedestrian access, safety
Scenic Highway Median Barrier	M	Improved traffic flow, safety
Rail Trail Extensions (Outer Cape)	I, LEP	Improved bicycle/ pedestrian access, safety
Hyannis Access Phase II (Yarmouth Road Corridor)	I, M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Route 6 Outer Cape Safety & Multimodal Improvements	I, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Scenic Highway/Route 25 Connector Ramp	M	Improved traffic flow, safety
Interchange Improvements – Priority Locations	TBD	Improved traffic flow, safety
Bike Path Connectors to Town Centers	TBD	Improved bicycle/ pedestrian access, safety

For reference, demographics maps will be included on the following page.

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix M: Transportation Project Analysis

JULY 15, 2019

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Technical Appendix M: Transportation Project Analysis

UNIVERSE OF PROJECTS

The universe of projects identified for funding can be divided into one of four funding categories:

- Transportation Projects
- Transportation Programs
- Smart Solutions
- Transportation Studies

A "transportation project" is specific in the location and nature of construction or other activity that is anticipated. Examples of potential transportation projects include the reconfiguration of Exit 1C on Route 6 and the construction of a new multi-use trail from the end of the existing Shining Sea Bikepath to the Cape Cod Canal Path. Any project over $20 Million in total cost must be included in the RTP to receive federal funding. Projects under $20 Million may be included in the RTP depending on the level to which the project has been developed.

Given that the RTP, covers a 25-year time-span it beyond our ability to define every specific transportation project that will implemented. Therefore, "transportation programs" identifying categories of specific transportation projects that are anticipated to be implemented and identifying funds to pay for these bundles of transportation projects. Examples of potential transportation programs include roadway resurfacing, intersections improvements, and transit operating assistance and capital needs.

"Smart solutions" are initiatives that do not require major investments in capital or operations. Examples of potential smart solutions include coordination of Cape Cod Regional Transit Authority and ferry schedules with each other and the development of a Cape-wide bicycle route system.

Finally, "transportation studies," seek to solve problems through planning efforts that focus on analysis of alternatives and public participation. These transportation studies ultimately identify solutions to problems that may be in the form of future transportation projects, programs, and/or smart solutions.

Each of the transportation projects, transportation programs, smart solutions, transportation studies listed with the universe of projects includes the town, title, description, category, and estimated costs. The cost estimates are conceptual in nature and would be refined is a project is

further designed. A score is presented for projects that have been scored the Transportation Improvement Program (TIP) Transportation Evaluation Criteria. Remaining project are considered to be a "stage zero" with insufficient information on the nature of the potential project to score the project. These criteria, as summarized in the table below, were approved by the Cape Cod MPO following the adoption of the 2016 RTP. These criteria may be updated following the adoption of the 2020 RTP to ensure consistency between on RTP and the TIP.

TABLE 1. Transportation Improvement Program (TIP) Transportation Evaluation Criteria

CATEGORY	CRITERIA	POINTS (OUT OF 100)
System Preservation and Modernization	■ Primary asset condition / effect on condition ■ Enhancements to other assets ■ Modern technology/regional ITS efforts	35
Mobility	■ Existing motorist congestion / effect on motorist congestion ■ Effect on mobility / accommodation of non-motorists ■ Effect on connectivity / access	10
Safety	■ Motorist crash history and anticipated safety impact ■ Non-motorist crash history and anticipated safety impact	10
Economic Impact	■ Effect on regionally-designated economic development area ■ Effect on locally-designated business district ■ Housing, job, cultural centers, & essential services connections / freight	10
Environmental and Health Effects	■ Wetlands, wildlife, or other resources ■ Stormwater management/treatment ■ Air quality / GHG emission ■ Coastal Resiliency/SLR Vulnerability ■ Cultural resources or open space ■ Healthy Transportation Options	10
Cost Effectiveness	■ Project cost per user	15
Policy Support	■ Community support (demonstrated through highest elected officials) ■ Regional plans/policies ■ Local plans/policies ■ Supports Federal/State policies/goals	10

The Universe of Projects for the 2020 RTP are shown on the following pages.

Type	TOWN	Title	Description	Category	Ann. Cost /yr ($K)	Start Cost ($K)	Total Cost ($K)	Score
Project	Barnstable	Hyannis Access Improvements	Improve access to downtown Hyannis per Hyannis Access Study. Construct 2 additional travel lanes w/landscaped median on Yarmouth Road to connect from existing 4-lanes in Yarmouth to Route 28 in Hyannis. Construct grade-separation of Route 132/Rotue 28E at Airport Rotary. Includes multi-use path and sidewalk.	Highway		56,400	56,400	
Project	Yarmouth Dennis Harwich Chatham	Rte 28 Multimodal Improvements	Multimodal improvements on of Route 28 from Falmouth to Orleans potentially markings, signage, minor widening, sidewalk construction, and improvements per the Rte 28 Safety and Traffic Flow Study including turning lanes, signal optimization.	Multi-Modal		20,000	20,000	
Project	Orleans, Eastham, Wellfleet, Truro, Provincetown	Route 6 Improvements Orleans to Provincetown	Implement safety improvements in the Route 6 corridor between Orleans and Provincetown	Highway		5,000	5,000	
Project	Wellfleet, Truro, Provincetown	Cape Cod Bike Path Extensions (Outer Cape)	Extend Cape Cod Rail Trail from S. Wellfleet to Provincetown	Bicycle/Pedestrian		20,000	20,000	
Project	Falmouth Bourne Sandwich Barnstable Yarmouth	Cape Cod Bike Path Extensions (Mid- and Upper-Cape)	Extend path (Cape Cod Rail Trail) from Yarmouth to Canal bikepath and from Canal through Bourne to Shining Sea Bikeway (Bourne Rail Trail)	Bicycle/Pedestrian		35,000	35,000	
Project	Bourne	Scenic Highway Median Barrier	Complete construction of median barrier along Route 6 Scenic Highway from Edge Hill Road to Belmont Circle in Bourne	Safety		10,000	10,000	60
Project	Bourne	Scenic Highway/Rte 25 Connector Ramp	Develop a direct connection from Scenic Highway to Rte. 25 to divert traffic from the Belmont Circle.	Highway		7,000	7,000	
Project	Bourne Sandwich Barnstable Yarmouth Dennis Harwich Brewster Orleans	Route 6 Hydroplaning	Route 6 stormwater improvements to remove runoff from traveled way, including construction of shoulders as needed	Safety		10,000	10,000	
Project	Bourne Sandwich Barnstable Yarmouth Dennis Harwich Brewster Orleans	Interchange Improvements Rte 6	Mid-Cape Hwy - Implement improvements to Route 6 Interchanges	Highway		40,000	40,000	
Project	Capewide	Bike Path Connectors to town centers	Bike Path Connectors to town centers per CCC studies	Bicycle/Pedestrian		10,000	10,000	
Project	Barnstable	Rt 28/Yarmouth Rd Intersection Improvements	Construction of turning lanes and signal upgrades per Hyannis Access Study	Highway		15,600	15,600	83
Project	Barnstable	Route 132 Improvements	Provide bicycle & pedestrian accommodations along Route 132	Bicycle/Pedestrian		5,000	5,000	
Project	Bourne	Bourne Rotary Improvements	Reconfigure Bourne rotary to allow direct connection between Bourne Bridge to Route 28 (MacArthur Blvd). Interim improvements to improve flows at rotary entrances and exits by widening and pavement markings/signage.	Highway		56,000	56,000	
Project	Bourne	Sandwich Road Parkway	Develop Sandwich Road into a 4 lane parkway with a landscaped median.	Highway		35,000	35,000	
Project	Bourne	Rte 28 MacArthur Boulevard Improvements	Bourne - Construction of 2 new northbound lanes on Rte 28, reverse existing northbound, existing southbound becomes frontage road	Highway		20,000	20,000	
Project	Bourne, Sandwich	Cape Cod Canal Bridges Replacement/Expansion	Address future needs for highway crossings of Cape Cod Canal. Includes replacement or expansion of existing bridges	Highway		700,000	700,000	
Project	Capewide	HOV Lanes	Construct High-Occupancy Lanes at key segments of freeways such as Route 6, 3, 25, and 28.	Highway		30,000	30,000	
Project	Falmouth	Route 151 Improvements - Falmouth	Provide bicycle & pedestrian accommodations along Route 151	Bicycle/Pedestrian		10,000	10,000	
Project	Mashpee	Mashpee Rotary Ring Roads	Construct connector roads outside of the Mashpee Rotary: from Great Neck Road South to Route 28 East Leg; from Great Neck Road North to Route 151	Highway		20,000	20,000	
Project	Mashpee	Route 151 Improvements - Mashpee	Provide bicycle & pedestrian accommodations along Route 151	Bicycle/Pedestrian		16,000	16,000	80
Project	Sandwich	Rt 6A over Scorton River Bridge	Replace bridge: Rt 6A over Scorton River in Sandwich	Bridge		12,000	12,000	
Project	Wellfleet	Chequessett Bridge	Chequessett Bridge Rehabilitation	Bridge		12,000	12,000	

Type	TOWN	Title	Description	Category	Ann. Cost /yr ($K)	Start Cost ($K)	Total Cost ($K)	Score
Project	Bourne Sandwich Barnstable Yarmouth Dennis Brewster Orleans	Route 6A Improvements	Provide bicycle & pedestrian accommodations along Route 6A	Bicycle/Pedestrian			0	
Project	Capewide	Bikeshare	Deploy bikeshare bicycles to village centers and strategic locations	Bicycle/Pedestrian			0	
Project	Barnstable Boston	Barnstable-Boston Ferry Service	Ferry service: Barnstable to Boston	Ferry		15,000	15,000	
Project	Bourne	Rail Platform - Canal Southside	Construct rail platform on south side of Cape Cod Canal	Rail		4,000	4,000	
Project	Capewide	Transit Frequency Improvements	Increase frequency of transit service (including additional night & weekend service)	Transit			0	
Project	Dennis Yarmouth	Dennis-Yarmouth Local Bus Service	Local bus service linking villages of Yarmout & Dennis to connections at Patriot Square	Transit			0	
Project	Falmouth and Hyannis to New Bedford	2 New Ferry Services	Provide new ferry services: New Bedford-Woods hole, New Bedford-Hyannis	Ferry	2,000	100,000	142,000	
Project	Provincetown	Provincetown Intermodal Gateway Project - Construction	Construct the Gateway	Enhancements		8,000	8,000	
Project	Barnstable	Villager Bus Service (Red Line) Split	Add CCRTA Villager service into two separate, coordinated lines	Transit	5		105	
Project	Barnstable	Route 132 Access Management	Construct traffic channelization, land acquisition, combine/eliminate driveways to improve traffic flow and safety from CC Mall to Phinneys Lane	Safety		5,000	5,000	
Project	Barnstable	Airport Rotary Traffic Improvements	Reconfigure Airport Rotary to improve traffic flow and safety. May include realignment of approaches and reduction of diameter to conform to modern roundabout design. Includes multi-modal improvements	Safety		5,000	5,000	
Project	Barnstable	Barnstable Roundabout	Improve traffic flow and safety of the Route 6A/Route 132 intersection through channelization of traffic movements (roundabout)	Safety		3,000	3,000	
Project	Barnstable	Truck Staging at Route 6 Interchange	Construct truck transfer staging area near a Route 6 (e.g., Exit 6 or Exit 7) interchange for transfer of freight from large trucks to smaller trucks for destinations in the Hyannis Area. Consider rail freight transfer.	ITS/Management		3,000	3,000	
Project	Barnstable	Osterville-Cotuit Bike Connection	Construct off-road connection south of Route 28 for bicycle-pedestrian access between Osterville and Cotuit	Bicycle/Pedestrian		2,000	2,000	
Project	Barnstable	Rt 6A W. Barnstable Sidewalk	Construct sidewalk along Route 6A in W. Barnstable	Bicycle/Pedestrian		2,000	2,000	
Project	Barnstable Bourne	Upper/Mid Cape Real Time Traffic Information System	Real Time Traffic Information System -- Design Build of year-round 24/7 Web based traffic information system based on cameras, sensors, with 511 to reduce road rage, congestion, and improve mobility and incident management through improved information	ITS/Management		3,000	3,000	
Project	Bourne	Infrastructure Improvements for Buzzards Bay Commuter Rail Service	Infrastructure Improvements (Platform, Parking, etc.) for Buzzards Bay Commuter Rail Service	Rail		5,000	5,000	
Project	Bourne	Exit 1C Ramp Relocation	Relocated westbound Route 6 Exit 1C ramps away from Sagamore Bridge	Highway		33,000	33,000	
Project	Bourne	Route 25 Access Ramp Widening/Belmont Circle Modification	Route 25 Access Ramp Widening/Belmont Circle Modification	Highway		15,000	15,000	
Project	Bourne	Reconfigure Route 6/28 Bypass (Buzzards Bay)	Reduce road width to 1 travel lane in each direction; provide local access to cross-streets; construct multi-use path from Memorial Circle to Belmont Circle. Per 2007 "Buzzards Bay Village Comprehensive Transportation Plan."	Highway		5,000	5,000	
Project	Bourne	Memorial Circle Reconfiguration (Routes 6/28, Main Street Buzzards Bay)	Convert Memorial Circle to 4-way Intersection; includes slip lane connection for eastbound Routes 6/28 to Main Street. Per 2007 "Buzzards Bay Village Comprehensive Transportation Plan."	Highway		4,000	4,000	
Project	Bourne, Sandwich	Cape Cod Canal Park-and-Ride Lot(s) Improvements	Construct new and/or expand existing Park-and-Ride facilities on both sides of the Cape Cod Canal near highway bridges	Multi-Modal		3,000	3,000	
Project	Capewide	Intercity Seasonal Connector-demonstration	Intercity Seasonal Rail Connector-demonstration	Transit		4,000	4,000	
Project	Capewide	Beach Shuttle Expansion	Acquire additional buses to accommodate inland National Seashore parking needs - National Park Service.	Transit		400	400	
Project	Capewide	Mobility Management Call Center	One-stop traveler call center to coordinate all travel modes and to manage eligibility and special requirements for human services.	Transit			0	
Project	Capewide	Expansion of Next-Gen Mobile Data Terminals to Paratransit	State-of-the-art displays, global positioning systems (GPS), automatic vehicle location (AVL) systems, in-vehicle navigation systems, digital driver manifests and mobile data collection.	Transit			0	
Project	Capewide	Emergency Routes & Shelters Signage	Install signage indicating emergency routes and shelter locations	Security		150	150	
Project	Capewide	Parking Improvement Implementation - Phase 1	Develop inland parking for the National Seashore	Park & Ride		150	150	

Type	TOWN	Title	Description	Category	Ann. Cost /yr ($K)	Start Cost ($K)	Total Cost ($K)	Score
Project	Capewide	Transportation Management Center	Design & construct Operations Center to monitor traffic operations, issue real-time reports to traveling public, control variable message signs and coordinated traffic signals	ITS/Management		6,450	6,450	
Project	Capewide	Canal Area Intelligent Transportation System	Expand transportation monitoring system to improve congestion & safety while providing real-time information Capewide & beyond	ITS/Management		3,000	3,000	
Project	Capewide	Variable Message Signs	Remote operated variable message signs installed along all major routes - Rte 6, Rte 28 in Bourne & Falmouth, Rte 25 Extension, Rte 3	ITS/Management	10	1,000	1,210	
Project	Capewide	Permanent Traffic Counting Stations	Install permanent traffic counting stations at strategic locations Cape-wide, including remote-accessible detection at signalized intersections	ITS/Management	5	175	280	
Project	Capewide	Cape-wide Highway Advisory Radio	Provide travel information cape-wide via AM radio	ITS/Management		250	250	
Project	Capewide	Outer Cape ITS Operations Control Center	Design and build an initial control center to accommodate ITS deployment for the Outer Cape	ITS/Management		250	250	
Project	Capewide	Information Kiosks	Procure, install, and enable public transportation information kiosks	ITS/Management		200	200	
Project	Capewide	Highway Advisory Radio System	Permit and install a highway advisory system for the lower/outer Cape area.	ITS/Management		200	200	
Project	Capewide	Upgrade Radio System for CCRTA Service	Improve communications systems and provide capacity to accommodate ITS components /Narrowband Radio.	ITS/Management		150	150	
Project	Capewide	Surveillance Cameras	Permit, and install surveillance cameras for the Outer Cape to observe traffic conditions and monitor Nat'l Seashore parking facilities.	ITS/Management		50	50	
Project	Chatham	Rt 28/Crowell Rd/Depot Rd/Queen Anne Rd Intersection Improvements	Intersection improvements at Rt 28/Crowell Rd/Depot Rd/Queen Anne Rd in Chatham	Highway	76	3,000	4,596	
Project	Dennis	Rt 134/Airline Rd Roundabout	Route 134 at Airline Road, Intersection Improvements (roundabout)	Highway		3,000	3,000	
Project	Dennis	Rte 28 Main St Bridge Rehabilitation	Rehabilitate Route 28 Main Street/Swan Pond River Bridge (Dennis)	Bridge		6,000	6,000	
Project	Dennis	Rt 6A (Dennis) Sidewalks	Route 6A sidewalks Yarmouth TL to Sesuit Neck Road	Bicycle/Pedestrian		2,000	2,000	
Project	Dennis	Rt 134 (Dennis) Bike/Ped Accommodation	Route 134 state section sidewalks / pedestrian bicycle accommodation, existing gap	Bicycle/Pedestrian		2,000	2,000	
Project	Eastham	Route 6/Gov. Prence Road Intersection Improvements	Install improvements at Route 6/Governor Prence Road intersection in Eastham	Safety		3,000	3,000	
Project	Eastham	Align Roadways: Aspinet /Nauset	Align Aspinet Rd with Nauset Rd at Route 6(Eastham)	Safety		3,000	3,000	
Project	Eastham	Governor Prence Road reconstruction and improvements	Reconstruction to improve sub-surface, pavement, and multimodal accommodation	Safety		3,000	3,000	
Project	Eastham Orleans	Eastham Rotary Bike/Ped Accommodation	Add bike/ped accommodation to connect Orleans to Rock Harbor Rd & Rt 6 in Eastham via periphery of rotary	Bicycle/Pedestrian		1,500	1,500	
Project	Falmouth	Falmouth Transit Improvements	Add service/stops to Surf Drive, Maravista Ave, Brick Kiln Rd, Jones Rd.	Transit			0	
Project	Falmouth	Rt 28/Old Meetinghouse Rd Intersection Improvements	Intersection improvements at Rt 28/Old Meetinghouse Rd in Falmouth	Highway		3,000	3,000	
Project	Falmouth	Cross-Falmouth Bikepath	Bike path connection from E. Falmouth to Gifford St. to Shining Sea Bike Path	Bicycle/Pedestrian		3,000	3,000	
Project	Falmouth, Mashpee, Barnstable, Yarmouth, Dennis, Harwich, Chatham	Southside Bike Route	Define network (on- and off-road) for bike route from Woods Hole to Chatham	Bicycle/Pedestrian		100	100	
Project	Harwich	Bike Path Connector	Bike Path Connection from Old Colony Rail Trail to Rt 28 & Beaches (Harwich)	Bicycle/Pedestrian		500	500	
Project	Mashpee Barnstable	Route 28 Improvements-Mashpee/Barnstable	Improvements on Rte 28 from Santuit/Newtown Road to Orchard Road in Mashpee	Highway		8,000	8,000	
Project	Orleans	Rt 28/Rt 39 Intersection Improvements	Identify safety improvements at Route 28/Route 39/Quanset Road intersection in Orleans	Safety		4,000	4,000	
Project	Orleans	Main Street (Orleans) Improvements	Main Street Sidewalk extension and reconstruction of Meeting House Road intersection	Bicycle/Pedestrian		300	300	
Project	Provincetown	Circulator Bus	High frequency trolley bus circulating among parking areas to serve downtown	Transit			0	
Project	Provincetown	Commercial St (Provincetown) Reconstruction	Commercial Street Reconstruction	Highway		3,500	3,500	
Project	Provincetown	Shank Painter Rd Corridor Improvements	Corridor improvements including new sidewalks, curb cut consolidation, landscaping, bicycle lanes, etc.	Bicycle/Pedestrian		6,200	6,200	
Project	Provincetown	Provincetown Bicycle Path Ext - Phase I	Develop an extension from Race Point to McMillan Pier	Bicycle/Pedestrian		1,000	1,000	
Project	Provincetown	Provincetown Bicycle Path Ext	Develop ped/bicycle facility using a portion of the Rte. 6 ROW	Bicycle/Pedestrian		1,000	1,000	
Project	Sandwich	Rt 130 Exit 2 Rt 6 Intersection Improvements phase 2	Route 130 Exit 2 Phase 2, WB exit ramp and Service Road intersection improvements	Safety		3,000	3,000	
Project	Sandwich	Quaker Meetinghouse Rd Sidewalk	Quaker Meetinghouse Road Pedestrian Accessibility 3 miles of sidewalk	Bicycle/Pedestrian		800	800	
Project	Sandwich	Canal Connector Bike Path	Bike Path Connection from Cape Cod Canal to Sandwich Center	Bicycle/Pedestrian		500	500	

Type	TOWN	Title	Description	Category	Ann. Cost /yr ($K)	Start Cost ($K)	Total Cost ($K)	Score
Project	Sandwich	Bike Information Kiosk	Construct informational kiosk by Canal bikeway near Sandwich Marina	Bicycle/Pedestrian		2	2	
Project	Sandwich, Bourne	Bus-Only Lanes for Rte 3 & Rte 6	Provide bus-only lanes between both Exits "2" and the Sagamore Bridge for both Rte. 3 and Rte. 6. This is expected to be achieved by widening and strengthening the shoulder section	ITS/Management		5,000	5,000	
Project	Yarmouth	West Yarmouth Rt 28 Intersection Improvements	Construct intersection improvements at Route 28 & East Main Street in West Yarmouth	Safety		3,000	3,000	
Project	Yarmouth	Route 6A/Union Street Intersection Improvements	Route 6A/Union Street intersection improvements in Yarmouth	Highway		3,000	3,000	
Project	Yarmouth	Old Townhouse Rd/Forest Rd Intersection Improvements	Intersection improvements at Old Townhouse Rd/Forest Rd in Yarmouth	Highway		3,000	3,000	
Project	Yarmouth	South Shore Dr (Yarmouth) Sidewalks	Yarmouth, Sidewalk improvements: South Shore Drive sidewalk- from Sea View Ave. to South Middle Beach	Bicycle/Pedestrian		650	650	
Project	Yarmouth	Winslow Gray Rd (Yarmouth) Sidewalks	Yarmouth, Sidewalk improvements: Winslow Gray Rd. sidewalk 0.75 miles long from Buck Island Rd. to Long Pond Dr.	Bicycle/Pedestrian		400	400	
Program	Capewide	Adaptive Signalization	Install and maintain signal prioritization hardware (e.g., Opticom) at traffic signals to improve public safety vehicle access, and transit priority	Safety		10,000	10,000	
Program	Capewide	Climate Change Adaptation & Mitigation	Implement adaptive measures at strategic locations to respond to the effects of climate change. Includes technological upgrades to support the electrification of the transportation system	Climate Change	1,000		21,000	
Program	Capewide	Street Lighting	Install street lighting in woody areas where appropriate	Safety	10,000		210,000	
Program	Capewide	Underground Utilities/Pole Relocation	Remove above ground utilities adjacent to roadways and install them underground or away from roadsides to improve safety where appropriate	Safety	3,000		63,000	
Program	Capewide	Vegetation Management	Implement a comprehensive program to trim/remove vegetation from encroaching areas	Safety	450		9,450	
Program	Capewide	Red Light Running Cameras	Support legislation to allow installation of red-light running cameras at high-crash signalized intersections	Safety	200		4,200	
Program	Capewide	Traffic Calming	Promote the installation of Traffic Calming features at appropriate locations	Safety	100		2,100	
Program	Capewide	Roadway Rehabilitation & Reconstruction	Roadway resurfacing, rehabilitation, and reconstruction	Highway	360,000		7,560,000	
Program	Capewide	Intersection Improvements	Intersection Improvements, including roundabouts, to address safety and congestion relief. Includes left-turn lanes & phases at signalized intersections	Highway	800		16,800	
Program	Capewide	Transit Operating	Transit Operating Assistance	Transit	3,050		64,050	
Program	Capewide	Transit Capital	Transit Capital Needs	Transit	2,150		45,150	
Program	Capewide	Additional CCRTA Service	Public transit shuttles connecting villages along Route 6A from Sandwich to Orleans, Provincetown-Orleans Shuttle, etc.	Transit	750		15,750	
Program	Capewide	Local Transportation Centers	Construct intermodal transportation centers in Buzzards Bay, Orleans, etc.	Transit	166		3,486	
Program	Capewide	Bus Service Amenities	Provide bus schedule signage & related amenities	Transit	150		3,150	
Program	Capewide	Cape-wide Flex Service	Expand Flex bus service throughout Cape Cod	Transit	100		2,100	
Program	Capewide	Transit Marketing & Education	Implement education programs and marketing activities to support public transit	Transit	50		1,050	
Program	Capewide	Construction of Enhanced Bus Shelters	Build intelligent, accessible, and energy efficient Cape Cod style bus shelters that provide real-time customer information and amenities.	Transit	36		756	
Program	Capewide	Railway Infrastructure	Maintain & provide rail infrastructure	Rail	2,000		42,000	
Program	Capewide	Mashpee Wampanoag Roadway & Transit Projects	Implement roadway & transit improvements to improve accessibility & mobility to and within tribal lands in Mashpee	Multi-Modal	200		4,200	
Program	Capewide	Park-and-Ride Lot Management	Monitor parking usage of parking facilities at Barnstable (Exit 6), Sagamore, Harwich (Exit 10); identify & acquire new facilities, expansions as necessary	Multi-Modal	10		210	
Program	Capewide	Cape-wide Intelligent Transportation Systems (ITS)	Design and implement real-time transportation monitoring and notification technologies at facilities throughout Cape Cod. Includes highway and transit users traveling to and within Barnstable County.	ITS/Management	2,500		52,500	
Program	Capewide	Land Conservation	Strategic purchase of land to reduce sprawl and inefficient allocation of transportation resources. Also used to acquire land for improvement of intersections and protection of operations at new interchanges	ITS/Management	1,000		21,000	
Program	Capewide	Access Management	Eligible for all state and local numbered routes. Curb cut consolidation, medians, other access improvements	ITS/Management	300		6,300	
Program	Capewide	Travel Demand Management/Transportation Systems Management (TDM/TSM)	Travel Demand Management/Transportation Systems Management projects (TDM/TSM). Includes support of Transportation Management Associations (TMAs). Provide assistance to employers and institutions for the development and coordination of alternative transportation options for employees and patrons.	ITS/Management	50		1,050	
Program	Capewide	Congestion Management	Consider peak period pricing at strategic locations to provide funding for transportation needs	ITS/Management			0	
Program	Capewide	New Ferry Service	Passenger ferries connecting Cape Cod harbors	Ferry	250		5,250	
Program	Capewide	Culvert & Bridge Abutment Improvements	Remove tidal restrictions and restore river and stream connectivity	Environmental	3000		63,000	

Type	TOWN	Title	Description	Category	Ann. Cost /yr ($K)	Start Cost ($K)	Total Cost ($K)	Score
Program	Capewide	Stormwater Treatment	Improve roadway stormwater treatment including nutrient management in key watersheds	Environmental			0	
Program	Capewide	Bridge	Bridge Replacement/Reconstruction	Bridge	9,000		189,000	
Program	Capewide	Bicycle/Pedestrian Projects	Bicycle and/or pedestrian facilities and programs. Includes development of a regional bike network, bike lane construction, bicycling accessibility improvements and amenities, pedestrian accessibility improvements and sidewalk network expansion.	Bicycle/Pedestrian	2,000	3,125	45,125	
Program	Capewide	Safe Routes to Schools	Installation of sidewalks and provide other improvements and programs to promote safe routes to schools	Bicycle/Pedestrian	30		630	
Program	Harwich to Truro	Flex Parking	Construct or designate parking areas for The Flex transit service	Multi-Modal	75		1,575	
Program	Sandwich, Barnstable, Yarmouth, Dennis, Brewster, Orleans	Route 6A/Scenic Byways	Corridor Management Plan update and implement recommended improvements. Includes connection of sidewalks (on both sides in villages), "Sharrow" pavement markings for bike accommodation. For report, see www.gocapecod.org/6Away	Highway	10	125	335	
Smart Solution	Barnstable Boston	Passenger Rail - Hyannis	Expand passenger rail service to Hyannis	Rail			0	
Smart Solution	Bourne Boston	Passenger Rail - Buzzards Bay	Expand passenger rail service to Buzzards Bay	Rail			0	
Smart Solution	Barnstable	CCRTA Bike Rental	Provide bike rental service at Hyannis Transportation Center	Bicycle/Pedestrian			0	
Smart Solution	Boston	Logan Intercity Bus Information	Provide real-time bus location information, schedules, fares etc. for service from Logan to Cape Cod	ITS/Management			0	
Smart Solution	Bourne Wareham	CCRTA-GATRA Coordination	Coordinate schedules and service between GATRA and CCRTA	Transit			0	
Smart Solution	Capewide	CCRTA/Steamship Authority Coordination	Coordinate schedules among the CCRTA SeaLine (Blue Line) and Steamship Authority Ferries	Transit			0	
Smart Solution	Capewide	Bus Users Incentives: Shopping Discounts	Provide shopping discounts to bus users	Transit			0	
Smart Solution	Capewide	Transit Education & Marketing on Local TV	Implement education programs and marketing activities on community-access television to support public transit	Transit			0	
Smart Solution	Capewide	Speed Management	Implement education, signage and enforcement to lower traffic speeds on roadways with speed-related safety problems	Safety			0	
Smart Solution	Capewide	Bicycling & Motorist Traffic Law Enforcement	Enforce traffic laws on bicyclists and motorists	Safety			0	
Smart Solution	Capewide	Rail Line Buffer Zone	Implement zoning protections to reduce future development for a distance of 100' along rail lines	Rail			0	
Smart Solution	Capewide	Vanpooling at Steamship Authority Lots	Permit use of Steamship Authority parking facilities for vanpooling	Multi-Modal			0	
Smart Solution	Capewide	Right-of-Way Preservation	Maintain rights-of-way for future transportation uses and to avoid future traffic generation	ITS/Management			0	
Smart Solution	Capewide	Vanpooling & Carpooling Incentives	Provide incentives to increase vanpooling and carpooling	ITS/Management			0	
Smart Solution	Capewide	Employer TDM Plans	Create incentives for employers to prepare and implement Travel Demand Management (TDM) plans (>25 Employees)	ITS/Management			0	
Smart Solution	Capewide	Redesignate 195 & 495	Redesignate Route 25 Extension as Route 195 or Route 495 or Route 195/495	ITS/Management			0	
Smart Solution	Capewide	Remote Continuous Traffic Counting	Encourage installation of equipment at signalized intersections and other locations to conduct traffic counts throughout Cape Cod throughout the year using remotely-accessible detection equipment	ITS/Management			0	
Smart Solution	Capewide	Carpooling "Stands/Stops"	Install signage and implement education & marketing program for the use of carpooling stands/stops" to promote higher occupancy vehicle use	ITS/Management			0	
Smart Solution	Capewide	Wi-Fi Hotspots	Install wireless internet services at strategic locations throughout Cape Cod	ITS/Management			0	
Smart Solution	Capewide	Zoning/Planning Support for Sidewalks	Improve zoning regulations & planning efforts to invest in sidewalks	Bicycle/Pedestrian			0	
Smart Solution	Falmouth	New Bedford-Martha's Vineyard Freight	To reduce traffic on Woods Hole Rd, operate barges between New Bedford and Martha's Vineyard to carry fuel trucks and garbage trucks.	Ferry			0	
Smart Solution	New Bedford	Promote Ferry Service from New Bedford		Ferry			0	
Study	Eastham	Route 6 Complete Street	Route 6 in Eastham: add bike accommodation, improve sidewalks, bus turnouts & stops to create "Complete Street"	Multi-Modal		12,000	12,000	
Study	Capewide	EV Charging Stations	Deploy electric vehicle charging stations at strategic locations throughout Cape Cod	Enhancements			0	
Study	Provincetown Boston	Improved Ferry Service	Increase ferry frequency throughout the year	Ferry			0	
Study	Barnstable	Exit 6 Park-and-Ride Lot Expansion	Examine options at Exit 6 Park-and-Ride Lot such as parking structure or surface lot expansion to expand parking supply	Park & Ride			0	
Study	Barnstable	Route 149 Improvements	Improve grading and alignment of Route 149; includes bicycle and pedestiran accommodations	Multi-Modal			0	
Study	Bourne	Sagamore Bridge Speed Management	Identify measures to encourage safe speeds on Route 3 and Route 6 approaches to the Sagamore Bridge	Safety			0	

Type	TOWN	Title	Description	Category	Ann. Cost /yr ($K)	Start Cost ($K)	Total Cost ($K)	Score
Study	Bourne	Rail Connection at "Y"	Examine construction of direct connection from Canal-side rail to Falmouth rail (eliminating need to lower Canal rail bridge)	Rail			0	
Study	Bourne Falmouth	Falmouth-Wareham Bike Connection	Connect Falmouth bike paths to Bourne/Wareham town line at William Dalton Bridge including connection to Cod Canal bike paths	Bicycle/Pedestrian			0	
Study	Capewide	Flex Phase II Evaluation Study	Evaluate improvements and expansion of the Flex transit service.	Transit			0	
Study	Capewide	Develop Origin/Destination Transit Mode Split Model	Create a transit model for Cape Cod	Transit			0	
Study	Capewide	Disaster/Emergencies/Security Plan	Develop plans to address disasters, emergencies, and security issues	Security			0	
Study	Capewide	Railways for Transporting Emergency Supplies	Develop contingency plan to use railways for transporting supplies during emergencies	Security			0	
Study	Capewide	Freight Rail	Increase use of rail for movement of freight	Rail			0	
Study	Capewide	Intra-Cape Rail Bus	Intra-Cape rail service using single unit self-propelled rail cars (e.g., Diesel Mutliple Unit)	Rail			0	
Study	Capewide	Mashpee Wampanoag Roadway & Transit Study	Identify roadway& transit improvements to improve accessibility & mobility to and within tribal lands in Mashpee	Multi-Modal			0	
Study	Capewide	Sustainable Freight Options Study	Conduct a study of sustainable freight options to follow-up on the Freight Study completed February 2015	ITS/Management			0	
Study	Capewide	Evaluation of Existing Transit Info Software/Procurement	Evaluate customer information software to be used for a web-based system to support CCRTA operations	ITS/Management			0	
Study	Capewide	ITS Evaluation and Phase II Recommendation study	Evaluate ITS deployment and make recommendations.	ITS/Management			0	
Study	Capewide	Evaluation of Customer Information Systems	Evaluate Customer Information Systems and make recommendations.	ITS/Management			0	
Study	Capewide	Evaluation of Partner Program II	Continue the evaluation of the public/private carrier coordination program.	ITS/Management			0	
Study	Capewide	Renewable Fuels Pilot Stations	Develop pilot stations for renewable fuels such as biodiesel and ethanol. Proposal includes one station in the Mid-Cape area and one in the Outer Cape area	Enhancements			0	
Study	Capewide	Renewable Fuels Partnership Strategic Implementation Plan	Identify potential renewable fuel options, technologies, markets, and infrastructure needs to make use of biofuels both viable and sustainable	Enhancements			0	
Study	Capewide	Shared Use Path Crossing Improvements	Install safe road crossings for shared use paths	Bicycle/Pedestrian			0	
Study	Mashpee	Mashpee Rotary Area Improvements	Modify Mashpee Rotary and approachs to improve traffic flow and safety. Includes accomodations for bicycle and pedestrian use.	Multi-Modal			0	
Study	Sandwich Mashpee	Rt 130 Road Diet	Narrow travel lane width to reduce speeds and accommodate bicycles/ pedestrians	Safety			0	

PROJECT ANALYSIS

Of the funding represented in the plan, a portion is available for "regional target projects." These are projects that the Cape Cod MPO has jurisdiction to select and prioritize. To ensure equity in the prioritization of these funds, Title VI and other equity considerations were incorporated in both the screening and analysis phases of the project selection process.

Screening of Highway Regional Target Projects

In order to determine the projects to be contained within the financially constraint of the document, analysis was conducted on the universe of projects (includes all potential projects identified during the development of the document). Analysis of projects was limited to projects $10 million or greater as staff determined this is the scale of project appropriate for specific inclusion in this document. Some projects under $10 million were included if it was determined that the potential benefits were commensurate with these larger scale projects. Analysis was conducted with a subcommittee of the Cape Cod Joint Transportation Committee (CCJTC, an advisory body to the Cape Cod MPO) where each project was considered for potential benefit, estimated cost, consistency with the objectives of the RTP, impact on performance targets, project score (where available), equity as it relates to minority, low income, Limited English Proficiency (LEP) and other protected populations, and GHG reduction potential. Considering these factors and the anticipated available funding, a financially-constrained program of projects was developed with the CCJTC subcommittee, reviewed by the CCJTC, and ultimately endorsed by the Cape Cod MPO.

Analysis of Highway Regional Target Projects

Following the screening process, a more detailed analysis of potential impacts (positive or negative) on low income, minority, and LEP populations was conducted as presented in the following.

Of the approximately $138 million programmed for specific projects, approximately 61% was on projects within and proximate to minority populations, 84% was on projects within and proximate to low income populations, and 72%, was on projects within and proximate to LEP populations. Given the regional nature of these projects, even projects that are not proximate to these identified population are likely to positively impact these identified populations as they travel through these locations to access regional services. This represents an investment in transportation infrastructure serving these areas proportionally higher than other areas on Cape Cod. In summary, the areas with higher proportions of low income and minority populations see more transportation dollars spent than other areas on Cape Cod.

TABLE 2. Highway Regional Target Projects – Income, Minority, and LEP Population Impacts

PROJECT	LOW INCOME [I], MINORITY [M], OR LIMITED ENGLISH PROFICIENCY [LEP] POPULATION AREA PROXIMATE	NATURE OF IMPACT ON LOW INCOME, MINORITY, OR LEP AREA
Mashpee: Route 151	M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Route 28 Multimodal Improvements: Various Locations	TBD	Improved bicycle/ pedestrian access, safety
Rail Trail Extensions (Mid- and Upper-Cape)	I, M, LEP	Improved bicycle/ pedestrian access, safety
Scenic Highway Median Barrier	M	Improved traffic flow, safety
Rail Trail Extensions (Outer Cape)	I, LEP	Improved bicycle/ pedestrian access, safety
Hyannis Access Phase II (Yarmouth Road Corridor)	I, M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Route 6 Outer Cape Safety & Multimodal Improvements	I, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Cape Cod Canal Area Transportation Improvements	M	Improved traffic flow, safety
Interchange Improvements – Priority Locations	TBD	Improved traffic flow, safety
Bike Path Connectors to Town Centers	TBD	Improved bicycle/ pedestrian access, safety

For reference, demographics maps are included in Appendix L.

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2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix N: Greenhouse Gas Analysis/Air Quality Conformity Determination

JULY 15, 2019

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GREENHOUSE GAS (GHG) ANALYSIS BAKGROUND

State policy context

The Global Warming Solutions Act (GWSA), which was signed into law in August 2008, makes Massachusetts a leader in setting aggressive and enforceable GHG reduction targets, and implementing policies and initiatives to achieve these targets. In keeping with the law, on December 29, 2010 the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), in consultation with other state agencies and the public, released the Massachusetts Clean Energy and Climate Plan for 2020. In December 2014, DEP issued new regulations that require MPOs to quantify impacts from project investments, track, progress towards reductions, and consider impacts in the prioritization of project investments. The targets for overall statewide GHG emissions are:

- By 2020: 25 percent reduction below statewide 1990 GHG emission levels
- By 2050: 80 percent reduction below statewide 1990 GHG emission levels

The role of MPOs

The Commonwealth's MPOs are integrally involved in supporting the GHG reductions mandated under the GWSA. The MPOs are most directly involved in helping to achieve the GHG emissions reductions through the promotion of healthy transportation modes through prioritizing and programming an appropriate balance of roadway, transit, bicycle and pedestrian investments – and assisting smart growth development patterns through the creation of a balanced multi-modal transportation system. This is realized through the transportation goals and policies espoused in the 2020 Regional Transportation Plans (RTPs); the major projects planned in those RTPs; and the mix of new transportation projects that are programmed and implemented through the TIPs. GHG tracking and evaluation processes enable the MPOs to identify anticipated GHG impacts of planned and programmed projects, and also to use GHG impacts as a criterion in prioritizing transportation projects.

Project-level GHG tracking and evaluation in TIPs

It is also important to monitor and evaluate the GHG impacts of the transportation projects that are programmed in the MPOs' TIPs. The TIPs include both the larger, regionally-significant projects

from the RTPs, which are reported in the Statewide GHG report, as well as smaller projects that are not included in the RTP but that may nevertheless have impacts on GHG emissions. The primary objective of this tracking is to enable the MPOs to evaluate expected GHG impacts of different projects and to use this information as a criterion for prioritizing and programming projects.

Calculation of GHG Impacts for TIP Projects

MassDOT has adopted spreadsheets used by MPOs to determine CMAQ eligibility and that also include CO2 impacts. The data and analysis required for these calculations is available from functional design reports that are submitted for projects that would produce a measurable GHG impact.

Projects with quantified impacts

RTP PROJECTS

Major capacity expansion projects are expected to have a significant impact on GHG emissions. These projects are included in each MPO's RTPs and analyzed using either the statewide model or the Boston MPO's regional model, which reflect GHG impacts. As a result, no independent TIP calculations are required.

QUANTIFIED DECREASE IN EMISSIONS

For those projects that are expected to produce a measurable decrease in emissions, the approach for calculating these impacts is described below. These projects are categorized in the following manner:

- Quantified Decrease in Emissions from Traffic Operational Improvement - An intersection reconstruction or signalization project that is projected to reduce delay and congestion.
- Quantified Decrease in Emissions from Pedestrian and Bicycle Infrastructure - A shared-use path that enables increased walking and biking and decreases vehicle-miles traveled (VMT).
- Quantified Decrease in Emissions from New/Additional Transit Service - A bus or shuttle service that enables increased transit ridership and decreased VMT
- Quantified Decrease in Emissions from a Park and Ride Lot - A park-and-ride lot that enables increased transit ridership/ increased ridesharing and decreased VMT
- Quantified Decrease in Emissions from Bus Replacement - a bus replacement that directly reduces GHG emissions generated by service.
- Quantified Decrease in Emissions from Complete Streets Improvements - Improvements to roadway networks that include the addition of bicycle and pedestrian accommodations where none were present before.
- Quantified Decrease in Emissions from Alternative Fuel Vehicle Procurements – A vehicle procurement where alternative fuel/advanced technology vehicles replace traditional gas or diesel vehicles.

- Quantified Decrease in Emissions from Anti-idling Strategies – Implementation of policies such as limiting idling allowed, incorporating anti-idling technology into fleets and using LED lights on trucks for the purpose of illuminating worksites.
- Quantified Decrease in Emissions from Bike Share Projects – A new bike share project or capacity added to an existing project.
- Quantified Decrease in Emissions from Induced Travel Projects – A project that changes roadway capacity
- Quantified Decrease in Emissions from Speed Reduction Programs – Programs that reduce speed to no less than 55 miles per hour.
- Quantified Decrease in Emissions from Transit Signal Priority Projects – A project that applies this technology to a signal intersection or along a corridor that impacts bus service.
- Quantified Decrease in Emissions from Truck Stop Electrification Projects – A new truck stop electrification project or capacity added to an existing project.
- Quantified Decrease in Emissions from Other Improvement

QUANTIFIED INCREASE IN EMISSIONS

Projects expected to produce a measurable increase in emissions.

Projects with no assumed impacts

NO ASSUMED IMPACT/NEGLIGIBLE IMPACT ON EMISSIONS

Projects that do not change the capacity or use of a facility (e.g. roadway median barrier or retaining wall replacement, or a bridge rehabilitation/replacement that restores the bridge to its previous condition) are assumed to have no/negligible GHG impact.

QUALITATIVE DECREASE IN EMISSIONS

Projects expected to produce a minor decrease in emissions that cannot be calculated with any precision. Examples of such projects include roadway repaving, signage improvement, ITS improvement, or transit marketing/customer experience improvement.

QUALITATIVE INCREASE IN EMISSIONS

Projects expected to produce a minor increase in emissions that cannot be calculated with any precision.

GREENHOUSE GAS (GHG) RTP PROJECT ANALYSIS

An analysis of regional target projects was also analyzed in relation to greenhouse gas (GHG) emissions. As presented in Table A-1, it is anticipated that most of the projects will result in nominal decreases in emissions for sidewalk and/or bicycle infrastructure or other improvements.

TABLE A-1. Highway Regional Target Projects – Anticipated GHG Impacts

PROJECT	ANTICIPATED GHG IMPACT
Mashpee: Route 151	Assumed Nominal Decrease in Emissions from Sidewalk and Bicycle Infrastructure
Route 28 Multimodal Improvements: Various Locations	Assumed Nominal Decrease in Emissions from Sidewalk and Bicycle Infrastructure
Rail Trail Extensions (Mid- and Upper-Cape)	Assumed Nominal Decrease in Emissions from Bicycle Infrastructure
Scenic Highway Median Barrier	Assumed Nominal Decrease in Emissions from Roadway Infrastructure
Rail Trail Extensions (Outer Cape)	Assumed Nominal Decrease in Emissions from Bicycle Infrastructure
Hyannis Access Phase II (Yarmouth Road Corridor)	Assumed Nominal Decrease in Emissions from Sidewalk and Bicycle Infrastructure
Route 6 Outer Cape Safety & Multimodal Improvements	Assumed Nominal Decrease in Emissions from Sidewalk and Bicycle Infrastructure
Cape Cod Canal Area Transportation Improvements	Project included MassDOT modeling used to develop the "Evaluation and Reporting of Statewide Greenhouse Gas Reductions In Transportation" presented in the next section of this Appendix
Interchange Improvements – Priority Locations	Assumed Nominal Decrease in Emissions from Roadway Infrastructure
Bike Path Connectors to Town Centers	Assumed Nominal Decrease in Emissions from Bicycle Infrastructure

EVALUATION AND REPORTING OF STATEWIDE GREENHOUSE GAS REDUCTIONS IN TRANSPORTATION MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) AND THE METROPOLITAN PLANNING ORGANIZATIONS (MPOS)

This section documents recent progress made by MassDOT and the MPOs in working to help achieve greenhouse gas (GHG) reduction goals as outlined in state regulations applicable to Massachusetts. This "progress report" estimates future carbon dioxide (CO_2) emissions from the transportation sector as part of meeting the GHG reduction goals established through the Commonwealth's Global Warming Solutions Act (GWSA).

GWSA Transportation Status: Future Carbon Dioxide Emissions Reductions

The Global Warming Solutions Act of 2008 requires statewide reductions in greenhouse gas (CO2) emissions of 25 percent below 1990 levels by the year 2020, and 80 percent below 1990 levels by 2050.

The Commonwealth's thirteen metropolitan planning organizations (MPOs) are involved in helping to achieve greenhouse gas reductions mandated under the GWSA. The MPOs work closely with the Massachusetts Department of Transportation (MassDOT) and other involved agencies to develop common transportation goals, policies, and projects that would help to reduce GHG emission levels statewide, and meet the specific requirements of the GWSA regulation – *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation (310 CMR 60.05).* The purpose of this regulation is to assist the Commonwealth in achieving their adopted GHG emission reduction goals by:

- Requiring each MPO to evaluate and report the aggregate GHG emissions and impacts of both its Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP).
- Requiring each MPO, in consultation with MassDOT, to develop and utilize procedures to prioritize and select projects in its RTP and TIP based on factors that include GHG emissions and impacts.

Meeting the requirements of this regulation is being achieved through the transportation goals and policies contained in the 2020 RTPs, the major projects planned in the RTPs, and the mix of new transportation projects that are programmed and implemented through the TIPs.

The GHG evaluation and reporting processes enable the MPOs and MassDOT to identify the anticipated GHG impacts of the planned and programmed projects, and also to use GHG impacts as a criterion in prioritizing transportation projects. This approach is consistent with the greenhouse gas reduction policies of promoting healthy transportation modes through prioritizing and programming an appropriate balance of roadway, transit, bicycle and pedestrian investments; as well as

supporting smart growth development patterns through the creation of a balanced multi-modal transportation system. All of the MPOs and MassDOT are working toward reducing greenhouse gases with "sustainable" transportation plans, actions, and strategies that include (but are not limited to):

- Reducing emissions from construction and operations
- Using more fuel-efficient fleets
- Implementing and expanding travel demand management programs
- Encouraging eco-driving
- Providing mitigation for development projects
- Improving pedestrian, bicycle, and public transit infrastructure and operations (healthy transportation)
- Investing in higher density, mixed use, and transit-oriented developments (smart growth)

Regional GHG Evaluation and Reporting in RTPs

MassDOT coordinated with MPOs and regional planning agency (RPA) staffs on the implementation of GHG evaluation and reporting in development of each MPO's 2012 and 2016 RTPs. This collaboration has continued for the MPOs' 2020 RTPs and 2020-24 TIPs. Working together, MassDOT and the MPOs have attained the following milestones:

- Modeling and long-range statewide projections for GHG emissions resulting from the transportation sector, as a supplement to the 2020 RTPs. Using the newly updated statewide travel demand model, GHG emissions have been projected for 2020 no-build (base) and build (action) conditions, and for 2040 no-build (base) and build (action) conditions (see the chart in this section for the results of this modeling).

- All of the MPOs have addressed GHG emission reduction projections in their RTPs (including the statewide estimates in the chart that follows), along with a discussion of climate change and a statement of MPO support for reducing GHG emissions from transportation as a regional goal.

MassDOT's statewide estimates of CO_2 emissions resulting from the collective list of all recommended projects in all of the Massachusetts RTPs combined are presented in the table below. Emissions estimates incorporate the latest planning assumptions including updated socio-economic projections consistent with the 2020 RTPs:

TABLE A-2. Massachusetts Statewide Aggregate CO2 Estimated Emissions Impacts from Transportation (all emissions in tons per summer day)

YEAR	CO_2 ACTION EMISSIONS	CO_2 BASE EMISSIONS	DIFFERENCE (ACTION – BASE)
2016	86,035.6	86,035.6	n/a
2020	75,675.6	75,865.9	-190.3
2040	54,484.2	54,702.2	-218.0

This analysis includes only those larger, regionally significant projects that are included in the statewide travel demand model. Many other types of projects that cannot be accounted for in the model (such as bicycle and pedestrian facilities, shuttle services, intersection improvements, etc.), are covered in each MPO region's RTP with either "qualitative" assessments of likely CO_2 change, or actual quantitative estimates listed for each project.

As shown above, collectively, all the projects in the RTPs in the 2020 Action scenario provide a statewide reduction of over 190 tons of CO_2 per day compared to the base case. The 2040 Action scenario estimates a reduction of 218 tons per day of CO_2 emissions compared to the base case.

These results demonstrate that the transportation sector is expected to continue making positive progress in contributing to the achievement of GHG reduction targets consistent with the requirements of the GWSA. MassDOT and the MPOs will continue to advocate for steps needed to accomplish the Commonwealth's long-term goals for greenhouse gas reductions.

Certification of the Cape Cod MPO Transportation Planning Process

310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation

This will certify that the Transportation Improvement Program and Air Quality Conformity Determination for the Cape Cod Metropolitan Planning Organization (MPO) is in compliance with all applicable requirements in the State Regulation 310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation. The regulation requires MPOs to:

1. 310 CMR 60.05, 5(a)(1): Evaluate and report the aggregate transportation GHG emissions and impacts of RTPs and TIPs;
2. 310 CMR 60.05, 5(a)(2): In consultation with MassDOT, develop and utilize procedures to prioritize and select projects in RTPs and TIPs based on factors that include aggregate transportation GHG emissions impacts;
3. 310 CMR 60.05, 5(a)(3): Quantify net transportation GHG emissions impacts resulting from the projects in RTPs and TIPs and certify in a statement included with RTPs and TIPs pursuant to 23 CFR Part 450 that the MPO has made efforts to minimize aggregate transportation GHG emissions impacts;
4. 310 CMR 60.05, 5(a)(4): Determine in consultation with the RPA that the appropriate planning assumptions used for transportation GHG emissions modeling are consistent with local land use policies, or that local authorities have made documented and credible commitments to establishing such consistency;
5. 310 CMR 60.05, 8(a)(2)(a): Develop RTPs and TIPs;
6. 310 CMR 60.05, 8(a)(2)(b): Ensure that RPAs are using appropriate planning assumptions;
7. 310 CMR 60.05, 8(a)(2)(c): Perform regional aggregate transportation GHG emissions analysis of RTPs and TIPs;
8. 310 CMR 60.05, 8(a)(2)(d): Calculate aggregate transportation GHG emissions for RTPs and TIPs;
9. 310 CMR 60.05, 8(a)(2)(e): Develop public consultation procedures for aggregate transportation GHG reporting and related GWSA requirements consistent with current and approved regional public participation plans;
10. 310 CMR 60.05, 8(c): Prior to making final endorsements on the RTPs, TIPs, STIPs, and projects included in these plans, MassDOT and the MPOs shall include the aggregate transportation GHG emission impact assessment in RTPs, TIPs, and STIPs and provide an opportunity for public review and comment on the RTPs, TIPs, and STIPs.
11. 310 CMR 60.05, 8(a)(1)(c): After a final GHG assessment has been made by MassDOT and the MPOs, MassDOT and the MPOs shall submit MPO-endorsed RTPs, TIPs or projects within 30 days of endorsement to the Department for review of the GHG assessment.

July 15, 2019

Steve Woelfel (Alternate) for Stephanie Pollack, Secretary and Chief Executive Officer
Massachusetts Department of Transportation
Chair, Cape Cod MPO

The signatures of the other MPO members may be found on page 2.

Pamela Haznar, (Alternate) for Jonathan Gulliver
Administrator, MassDOT Highway Division

Thomas Guerino
Chairman, Cape Cod Regional Transit Authority Advisory Board

Harold Mitchell
Chair, Cape Cod Commission

Dan Santos, (Alternate) for James H. Crocker Jr.
President, Barnstable Town Council

Ronald Bergstrom
Chair, Barnstable County Commissioners

Jason Steiding (Alternate) for Cedric Cromwell
Chairman, Mashpee Wampanoag Tribal Council

Judith MacLeod-Froman
Sub-region A Representative: Bourne, Falmouth, Mashpee, and Sandwich

Norman Holcomb
Sub-region B Representative: Dennis and Yarmouth

Alan McClennen
Sub-region C Representative: Brewster, Chatham, Harwich, and Orleans

Robert Weinstein
Sub-region D Representative: Eastham, Provincetown, Truro, and Wellfleet

CAPE COD COMMISSION

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CAPE COD COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix O: Survey Results

JULY 15, 2019

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Technical Appendix O: Survey Results

To facilitate public input in the development of the RTP, an online survey was developed and advertised through a number of outreach techniques as discussed earlier in this chapter. The RTP survey was advertised at RTP and other local and regional meetings and open houses distributed through the extended email distribution list, social media platforms, and picked up by a number of local media outlets.

The survey was open from February 5, 2019 through March 6, 2019 and a total of 273 responses were received.[1]

QUESTION 1 – RTP VISION STATEMENT AND GOALS

The online survey began with a draft vision statement and draft goals. As follow:

Draft Vision Statement:

The Cape Cod Metropolitan Planning Organization envisions a transportation system that supports the environmental and economic vitality of the region through infrastructure investment that focuses on livability, sustainability, equity, and preservation of the character that makes our special place special.

Goals:

- **Safety**: Provide safe travel options for all users
- **Environmental and Economic Vitality**: Maintain, protect, and enhance the natural environment while strengthening the economy
- **Livability and Sustainability**: Support livable communities and village centers that strengthen the long-term sustainability of the region
- **Multimodal Options/Healthy Transportation**: Provides a variety of healthy transportation options to all users
- **Congestion Reduction:** Reduce congestion and improve travel time reliability

[1] Given the relatively small sample size and the potential for self-section bias, the survey results should not be assumed to be necessarily representative of the overall population of Cape Cod

- **System Preservation**: Preserve, maintain, and modernize the existing transportation system
- **Freight Mobility**: Improve efficiency and reliability of freight movement

In question 1, respondents were asked to provide any suggested additions or revisions. Responses included:

- Public Safety
- Electric vehicle charging stations should be widely available in well-traveled public places. All buses and municipal fleets should be electrified - a moratorium on gas-powered or diesel-fueled vehicles that come under this agency's purview should be put in place immediately. More bus routes and solar-powered, well-lit bus shelters should be made available for working Cape Codders. Anyone who takes mass transportation should be shown the love! Enforcement of our idling laws should happen as well. People still routinely idle their cars and trucks which fouls the air for all of us and contributes to GHG emissions. More bike lanes and enforcement of road safety for cars and bikes are needed.
- Add EV charging Stationd!!! Increase "walkability" by improving sidewalks in each Town. Increase Van Services or Uber type services as it is easier than planning for buses. Realize that the climate crisis and extreme weather events may turn the Lower Cape into an Island. We need to be realistic about building new infrastructure.
- Be more specific. Perhaps tell us how much you plan to reduce emissions, etc.
- Be more specific in the vision statement that it is NATURE which binds together the life of the cape economically and environmentally. If nature prospers so does the cape. If nature declines so does everything else. Saving the Cape is good for business, but nature is where it all starts.
- Please add Vision Zero as an essential part.
- looks good!
- Congestion reduction should be the highest goal
- Increased bicycle travel viability
- Seems pretty comprehensive...
- I would move Congestion Reduction to the second position
- About freight mobility: Is there not a better way to transport goods to Martha's Vineyard than to use the Bourne Bridge, Rte 28 and Woods Hole Road to the ferry? Shipping directly from New Bedford makes much more sense!
- Besides thinking of transportation ie cars, buses etc, I would like to walk to and from places as well. There is the bike path, which is great for those still riding bikes, however, for seniors who no longer wish to drive everywhere, there should be sidewalks, especially along major

roads, ie Rt. 124 N/S, from the Tech School all the way to Town Center and the down to Harwichport. (The bike path currently goes E/W)

- Transportation vans that pick people up at their homes and brings them to doctor's appointments .
- no suggestions- sounds very good and complete
- Maybe add "entire" region to ensure inclusion of the Outer Cape
- Advanced transportation options for elderly and disabled
- none to add
- What do those terms mean exactly? If the mission statement states "preservation of the character" then no new widened roads or bridges should be created.
- Self paying
- Out transportation system should go beyond livability to a system of transportation that allows us to engage and appreciate our natural environment. This involves slowing traffic on minor and scenic roads, improving public transportation so people don't have to concentrate on navigation, and promoting safe conditions for bicycling, which will both incentivize more bicycling and allows riders to relax more.
- How to keep a younger demographic here
- incorporating/embracing technology
- 24-7 availability
- Cut out "that makes our special place special" - not needed
- n/a
- I would add to the goals providing mass transportation options for the year-round population to inexpensively commute to work both on and off cape.
- not enough focus on carbon neutral transport future. a small example - proposing a sensible approach for electric car charging stations to reduce risk of higher cost, go it alone town by town plans; not enough creativity vis a vis traffic safety, ie. consider installing cameras to automatically track and fine speeders. vis a vis volume traffic mngt/finance for new infrastructure - ie. possible use of cameras and other technology generate revenue from congestion pricing. and last - mass rapid options.
- What does sustainability mean here? A goal should be to move away from fossil fuel based transportation as quickly as possible. Charging stations for electric vehicles should be subsidized and required. Bike lanes and trails should be designed and built. All busses should be transitioned to electric vehicles.
- Please allow daily passenger trains to traverse Cape Cod, alleviating the automobile gridlock and air pollution.
- Goals should include a specific tie to climate mitigation/emission reduction frameworks and targets adopted at state and higher levels

- "Equity "is used in the vision statement but not listed as a goal. Please correct. Economic equity is important. All transportation modes must be affordable to all users- students, elderly, economically disadvantaged.
- Efficiency
- Livability - a vibrant lifestyle - & Sustainability
- none
- Need an emphasis on bike paths and sidewalks. Have never lived in a place where pedestrians and bike riders are thought so little of. We ask people to visit the Cape and give them few safe places to walk and ride.
- We really need a sidewalk from the top of Flint Street that connects to the sidewalk that starts at Old Falmouth Rd.
- Very comprehensive statement!
- Work towards a carbon neutral transportation system, setting specific goals and metrics.
- Carbon neutral transportation system with specific goals, timelines and metrics.
- Please consider a tunnel between the cape cod aggregates sand pit and Camp Edwards. The pit is almost exhausted and is almost to grade. The land between the pit to the northwest is mostly undeveloped and some is clouded with title problems allowing for easy transition to eminent domain. The connection is easier to Rt 25. The cape side is camp Edwards and most of which is Shawme Crowell state forest leased to the government. Everything north of Wood Rd. Is Shawme. Here again not too much disturbance to people.
- As the Cape ages, we need to be thinking about more transportation for those with mobility challenges.
- Expanding Rail Service
- Return of rail service to Falmouth and Woods Hole
- Affordability for users and government providers of all modes.
- Train to Falmouth along with railtrail.
- For livability and sustainability, it would be good to have more emphasis on increasing rail transportation. While it might be slow to get to Boston, having rail at least reach Buzzards Bay would help to decrease emissions, and remove traffic from Route 3, at a time when a recent report just cited that Boston has the worst traffic in America.
- Passenger mobility
- I would suggest that you change "informed by public input" to "guided by public and stakeholder input".
- some additional language on supporting infrastructure in activity centers would be useful, and more specific reference to resilience
- rail service
- Provide incentives for drivers to leave their car at home, take regional transit and carpool or bike ride. Many do not take busses as our personal vehicle is more comfortable. Also, late

night transit for those who work at shifts until midnight. Small/private autonomous vehicles will need to efficiently carry people as well as services offered by such similar taxi/ueber vehicles. Parking of any vehicles is at a premium on Cape especially near the waterfront, there should be a quota of how many vehicles are allowed over the bridges. I recently began a valet parking company, Chatham Valet to resolve event/overflow parking issues. My vision is to be able to get anyone efficiently from anywhere on the Cape to anywhere else.

- Passenger rail service to/from Falmouth to connect with buses to Woods Hole Also passenger rail service to/from New York or connecting trains from Providence to Cape Cod
- I'm not sure what "System Preservation" means. A better definition somewhere would be helpful, or maybe rephrasing this goal to make it clear.
- CONVENIENCE
- What does system preservation mean? That's the only goal that's not clear; which systems are you preserving? The bus system? We need more rail... The coastline? Yes please; preserve that. But be clearer on what you mean by that.
- Frequency and thoroughness
- Transparency and ease of access
- Deal with structurally deficient and functionally obsolete bridges.
- Getting people to where they need to go Efficiently.
- Sounds good to me.
- Cut Carbon Emissions
- Perhaps already covered, but the network of bike paths already show the potential for living in our community without resorting to driving a car. We need "the last mile", or perhaps only a few feet, to make it easier to get to where you need to go on a bike or similar and by walking. Extending bike trail routes safely into town centers and other commerce centers.
- Correctly and properly pave the entire stretch of Rte. 149 from route 28 all the way out to the mini rotary at the airport. Not patch work. A real paved, smooth surface with newly painted lines. Is that too much to ask?
- Living on Willimantic Dr, I wish I could walk or bike on Race Lane or Rt 149. There are no sidewalks near me or enough room to bike safely. I stopped biking from my house for fear of getting hit by a car and now have to drive my truck with bike to Centerville/Osterville or bike paths to bike which defeats the purpose of not wanting to drive. I would also like to be able to walk my dog on sidewalks, but none around, again having to drive somewhere else. Please look into making these enhancements for all of us in the area. Thank you.
- addition: expanding/extending reach of service
- Shouldn't goals be a little more descriptive such as "Improve safety conditions on all transportation facilities"; or "Ensure efficient freight movement to/from the region and between/within communities"; the one or two word leaves one with wondering "what is a

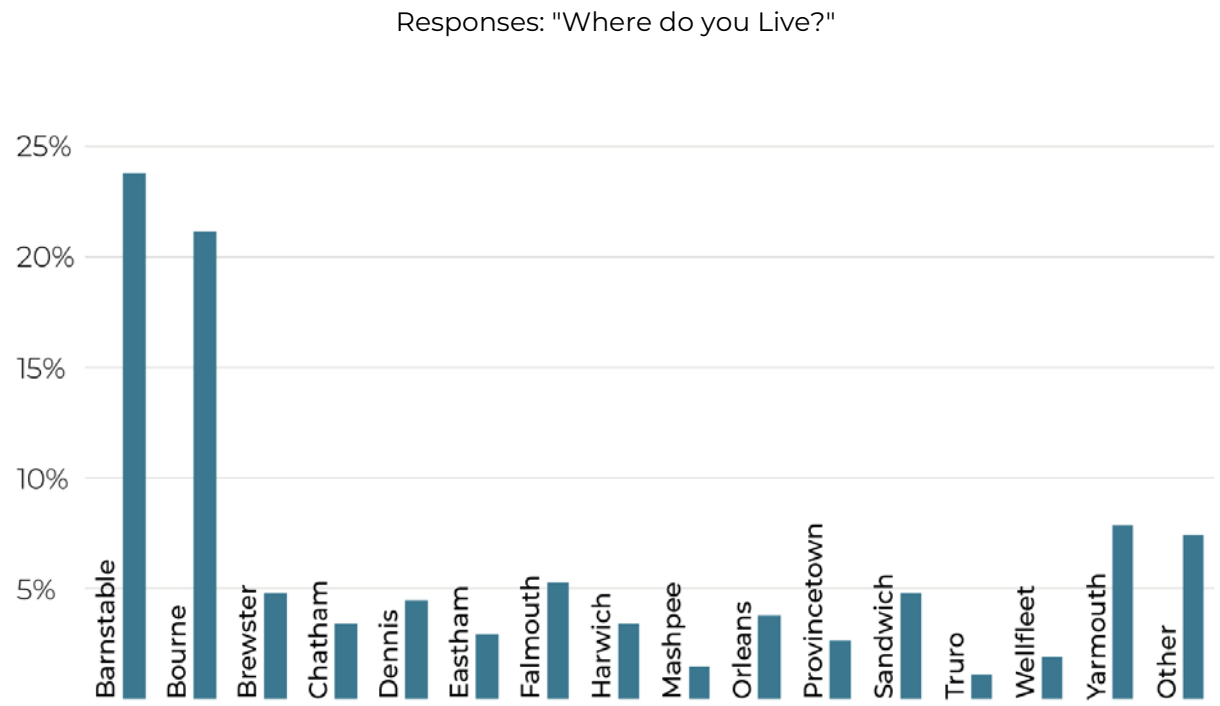
safety goal?" Each may simply need a action word in front of what is there. In any event - needs to be looked at regardless of past documents or not

- Consideration of the convience of the people of Sandwich and Bourne who host the two bridges.
- Protecting neighborhoods from the impact of alternate route congestion
- nothing to add
- Affordable, reliable and robust public transportation
- Climate change readiness
- Agree that safety is priority, especially given the number of young drivers in the area.
- Keep rest areas open. Expanding them would be better.
- Congestion Reduction
- Aesthetics
- Affordability
- The order...safety and traffic congestion should be listed higher in a transportation plan.... the environment is important, but people are still current part of the Cape Cod Environment
- Affordable transportation accessible for Senior Citizens!
- It should be possible for residents and visitors to live conveniently on Cape Cod without owning a car.
- no changes
- Regional Recreation Areas Parking

QUESTION 2 – PLACE OF RESIDENCE

In question 2 respondents were asked "Where do you live?" There were 270 responses. All 15 Cape towns were represented with the highest frequency in Barnstable (64 responses) and Bourne (57 responses).

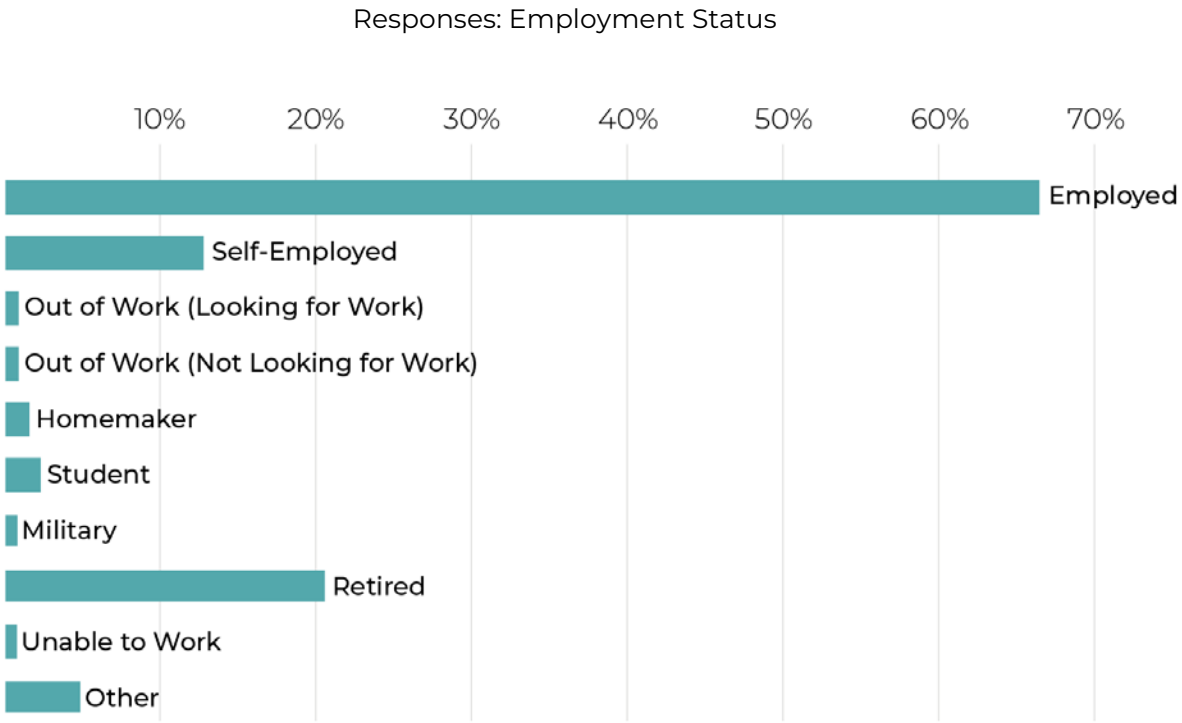
A distribution of responses is shown below in the following figure.



QUESTION 3 – EMPLOYMENT STATUS

In question 3 respondents were presented with a list of checkboxes including: Employed, Self-Employed, out of work (looking for work), Out of work (not looking), Homemaker, Student, Military, Retired, Unable to work, and "Other."

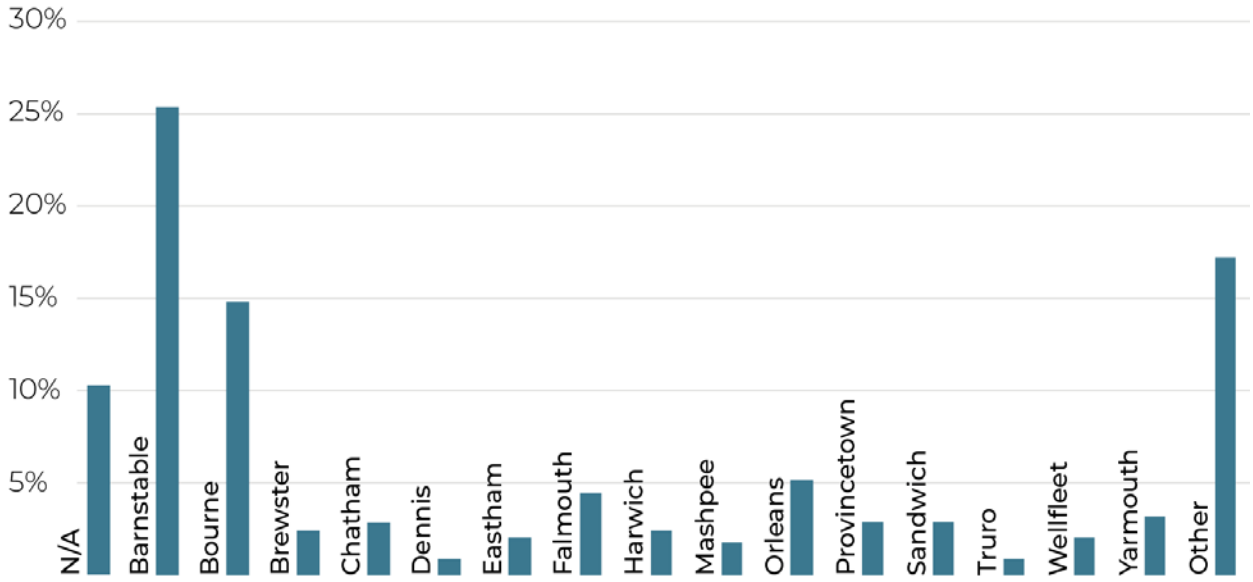
"Employed" had the largest number of responses (179) followed by "Retired" (56) and "Self-Employed" (35). Frequencies of responses are shown in the figure below.



QUESTION 4 – PLACE OF WORK/SCHOOL

In question 4 respondents were asked "Where do you typically work/go to school?" Respondents were presented with a drop-down list of Cape Cod town names and "Other." There were 257 responses to this question with the largest frequency of respondents selecting Barnstable (65) and "Other" (44). Of the "Other" responses, there were 12 that specified a destination in the Boston area. The frequency of responses is shown in the following figure

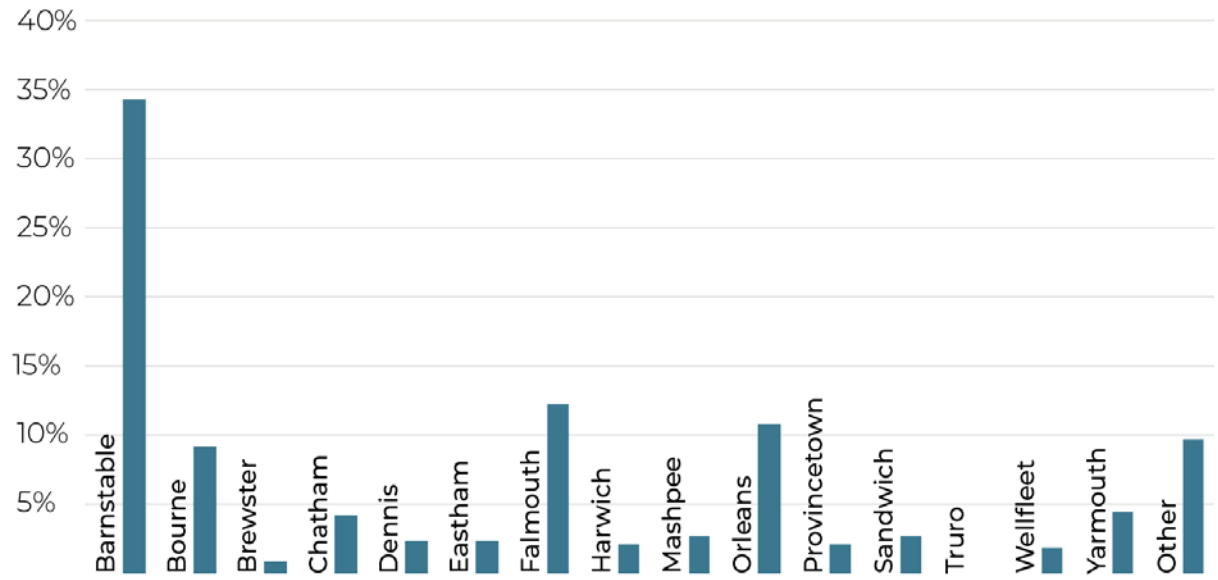
Responses: "Where do you typically work/go to school?"



QUESTION 5 – LOCATION OF OTHER ACTIVITIES

In question 5 respondents were asked "Besides home or work/school trips, what town do you spend most of your time? (visit, shopping, entertainment …)" Respondents were presented with a drop-down list of Cape Cod town names and "Other." There were 264 responses to this question. The most frequently selected towns include Barnstable (90), Falmouth (32) and Orleans (28); these responses are shown in the following figure.

Responses: "Besides home or work/school trips, in what town do you spend most of your time?"

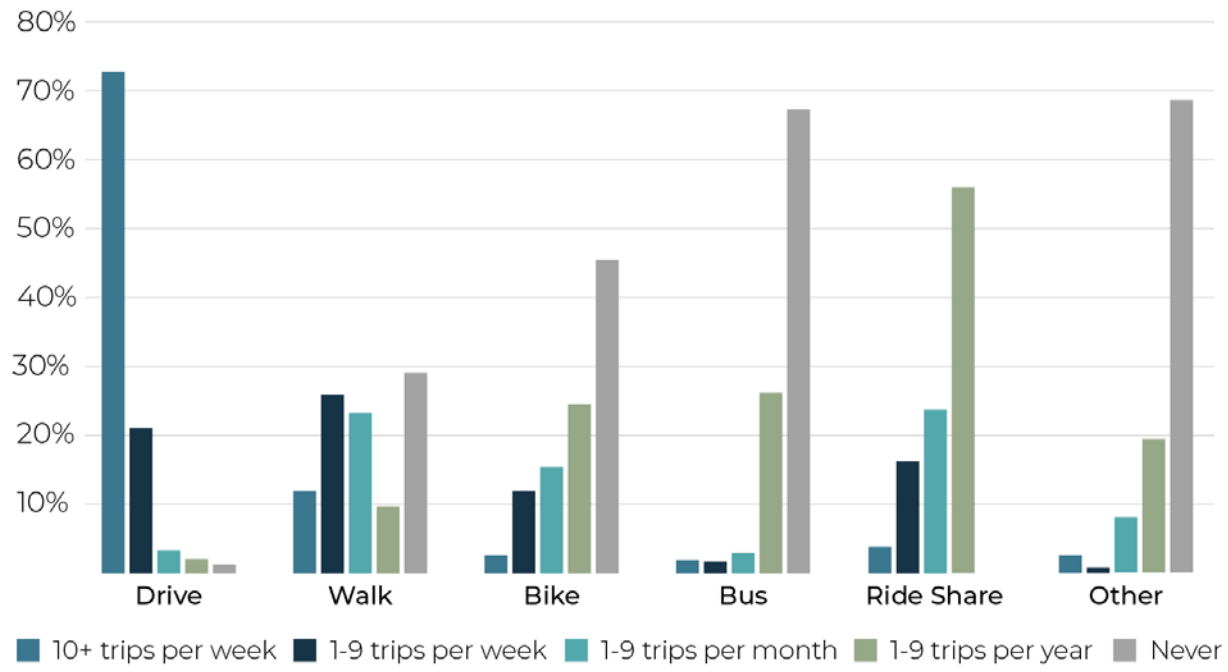


QUESTION 6 – MODE OF TRAVEL

In question 6 respondents were asked "How frequently do you travel by each of the following modes of transportation?" Possible choices included: Drive, Walk, Bike, Bus, Ride Share, Other. Choices of frequency included: 10+ trips per week, 1-9 trips per week, 1-9 trips per month, 1-9 trips per year, never.

As shown in the following figure, the most frequently used mode of travel is to drive. Walking was generally the second most popular travel mode, followed by bicycling. The use of buses or ride share services were relatively rare.

Responses: "How frequently do you travel by each of the following modes of transportation?"

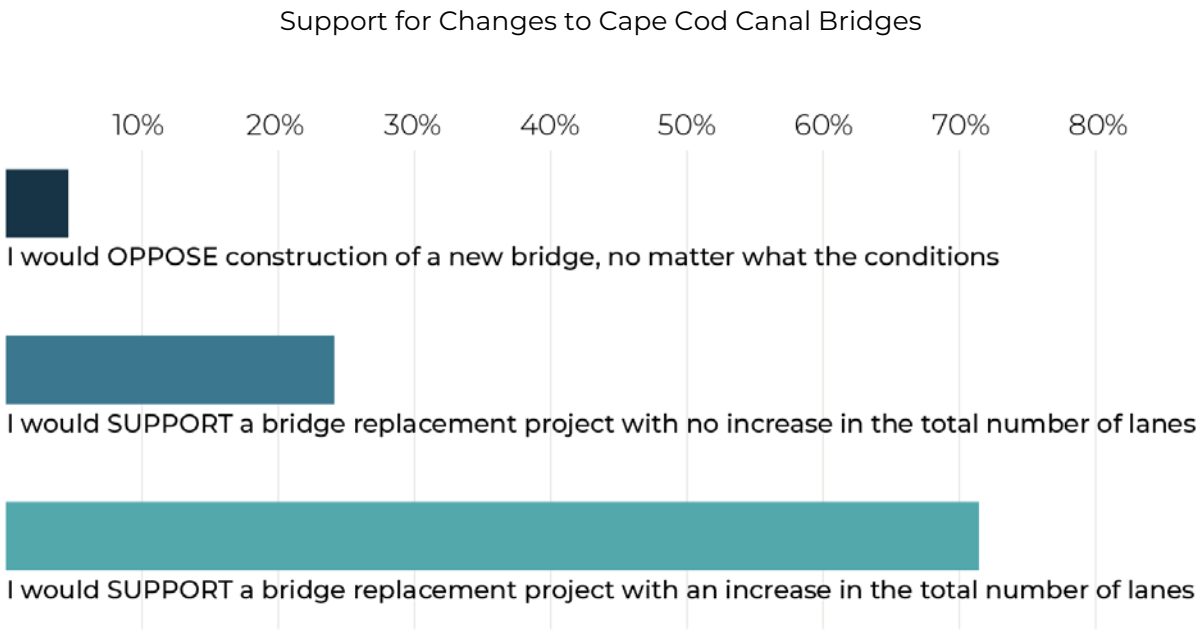


QUESTION 7 – POSITION CAPE COD CANAL BRIDGE REPLACEMENT

Studies by the Massachusetts Department of Transportation (MassDOT) and the Army Corps of Engineers are currently looking at transportation alternatives in the Cape Cod Canal area. Respondents were asked a few questions about the alternatives being considered such as construction of a new vehicular bridge over the Cape Cod Canal.

Regarding the above statement, in question 7 respondents were asked "Which statement most accurately describes your position?" There were 257 responses to this question broken down by the following choices:

I would OPPOSE construction of a new bridge, no matter what the conditions (12)
I would SUPPORT a bridge replacement project with no increase in the total number of lanes. (62)
I would SUPPORT a bridge replacement project with an increase in the total number of lanes. (183)



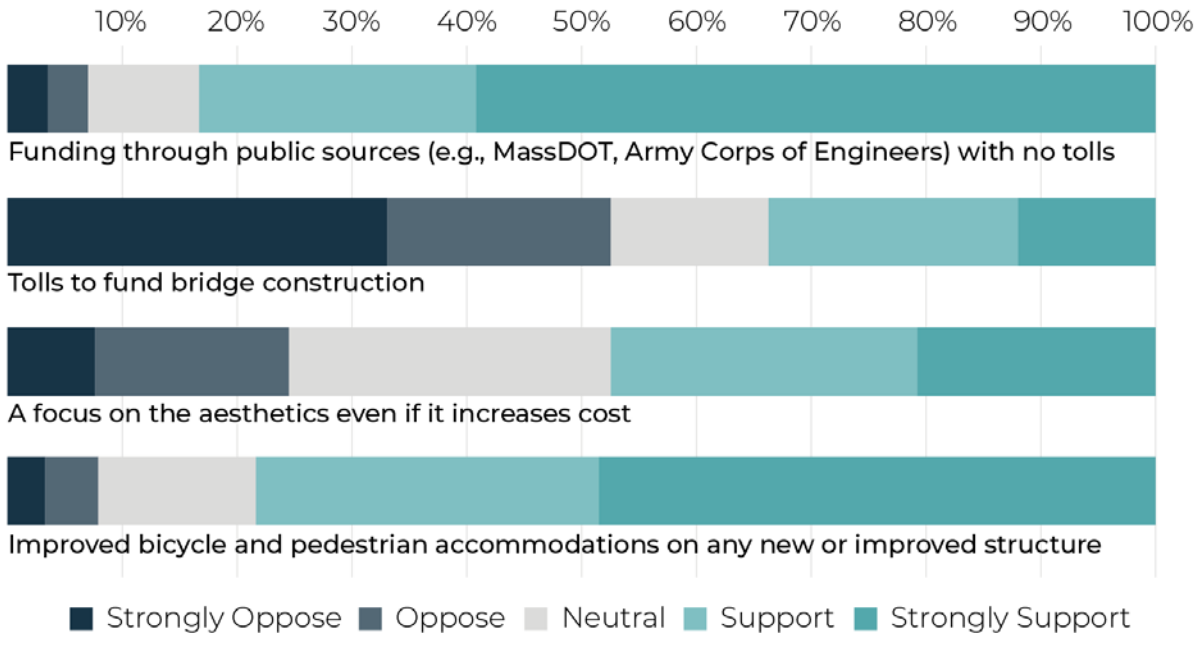
QUESTION 8 – CAPE COD CANAL BRIDGE CONSTRUCTION CONSIDERATIONS

In question 8, respondents "Regarding Cape Cod Canal bridge construction, please indicate your level of support for:" Categories included:

- Funding through public sources (i.e., MassDOT, Army Corps of Engineers) with no tolls.
- Tolls to fund for bridge construction
- A focus on the aesthetics even if it increases cost
- Improved bicycle and pedestrian accommodations on any new or improved structure

For each category, respondents were offered the following choices: Strongly oppose, Oppose, Neutral, Support, Strongly Support. Responses are summarized in the following figure.

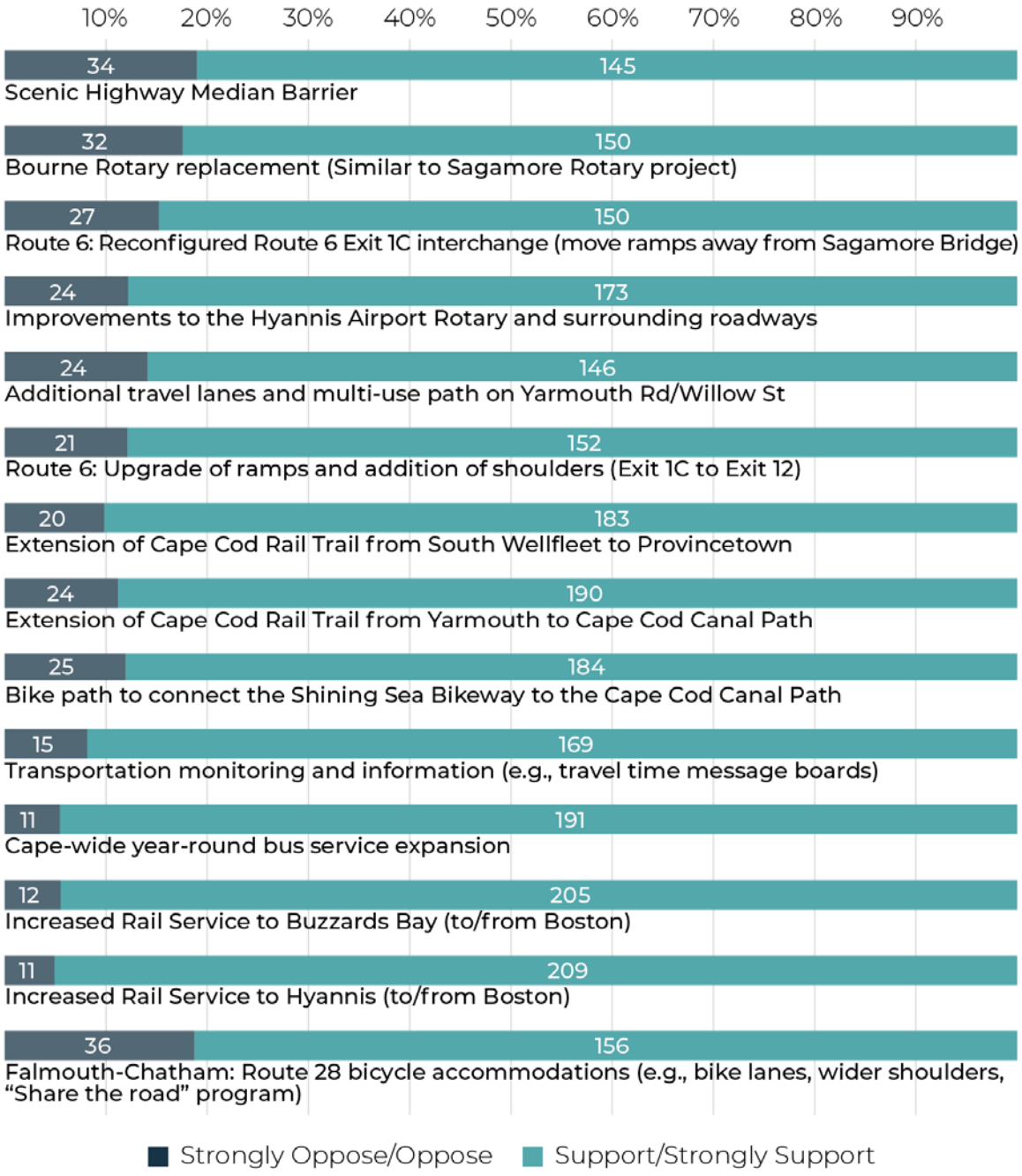
Support for Funding Options at Cape Cod Canal Bridges



QUESTION 9 – PROJECT SUPPORT

Respondents were then asked to indicate their support for the several projects. For each project, respondents were offered the following choices: Strongly oppose, Oppose, Neutral, Support, Strongly Support. Responses are summarized in the following figure.

Level of Support for Potential Projects



As part of question 9 respondents were also given an opportunity to identify other major projects they would support. Responses included:

- New highway on the south side of the canal to connect Bourne Bridge traffic to Rt 6. Eliminate scenic highway access to the Sagamore bridge
- More accessible, efficient, and ecological public transportation, like trains

- Expansion of Cape wide year round bus service.
- Improve safety and sidewalks as well as resolve parking issues on 6A in Yarmouth Port so we increase “walkability” of our Town. It will help local businesses while helping residents to not jump in their cars to shop. We need vibrant Towns that are walkable and allow for “aging in place” for Seniors and accessible for children.
- probably impossible - but a sidewalk along route 6A as far as possible - really a nice bike path would be better!!
- Any project that improves the efficiency of the vehicles in question.
- Widening route 3 on approach to sagamore bridge.
- I support the strategic placement of multiple electric charging stations on the cape. Locating them at places where people tend to gather and spend time. That would include, for example, tourist attractions, beaches, movie theaters, summer theater, shopping plazas, etc.
- Each project should improve access for all users, not just cars. We need more bike and pedestrian opportunity.
- Extend 4 lane divided highway on Route 6 to Eastham rotary. It is time.
- Increased local and regional bus, train, and mass transit services, including "flex-bus" options (even if just seasonal) to offer public alternatives to high cost private vehicles and taxi services
- A tourist friendly driver education program via media and online for driving on Cape Cod with its specific issues: narrow roads, large number of bicycles, large number of tourists unsure of destination, and larger than usual percentage of older drivers. Along these same lines improved signage reinforcing the above education and clearly pointing to areas of significant tourist interest.
- Replace bus fleet with electric buses
- Even though I previously supported tolls on the bridges to Cape Cod, I also do not believe residents of the Cape should have to pay them.... they should have a special tag to put on car for exemption. Again, there is nothing stated for walking around the towns... less vehicle traffic and more encouragement for people to walk! Brewster, Harwich,
- No bicycles on Crdar Street in Chatham as you can get killed getting your mail.
- "Road Diet" for Main St, Hyannis and possibly other towns to have one way traffic and possibly a pedestrian/cycle zone only with one lane of current parking spaces removed for dedicated bike lanes. Parking could be redirected to off Main St only. Many parking lots already exist both north and south of Main St. There may be other locations on the Cape, where this would also make sense. Businesses for both residents and tourists could benefit greatly from reduced motor traffic in front of their establishments and instead, slower moving cyclists and pedestrians. There is abundant research reporting the benefit to similar communities by increasing the walkability /bikeability (Outer Banks, N. Carolina

and others). 2. Safer cycling lanes along popular destinations such as Craigville Beach 3. Increased signage for "sharing the road" and "be aware of cyclists" on non-main roads that might be important connector routes for those using cycling for transportation.

- CapeFLYER stop on the Cape side of the Canal
- Enhanced transportation opportunities for the elderly including door to door service
- expansion of suicide alley for safety year-round, bike path from south orleans to rail trail in Orleans
- Upgrading arteries leading to and from Bourne Bridge on an interim basis until the final move to replace existing bridges occurs. I believe temporary solutions should be sought as I believe it will be ten+ years before bridges project are done. Cape Cod experience (and brand) will continue to erode during this time.
- Building at Bourne Rotary with road that bypasses the rotary, going to Sandwich Road.
- Sidewalk on Route 28 from Old Stage Road, Centerville to the West.
- Daily, fixed schedule MBTA service to Bourne and Hyannis is a must. Will allow people an opportunity to access Boston, and live off Cape and work there, or live on Cape and commute off.
- Whatever is done with the canal bridges, I would like to see lanes able to be adjusted to the traffic flow, i.e., with 4 lanes, lights signaling three in one direction during heavy traffic and one lane for the lighter traffic and vice versa. This is done successfully in so many other states.
- Cape wide large signage for upcoming roads like they have in cities to avoid people trying to figure out if the road they are looking for is really coming up
- I would like to see an increase in Bus routes throughout the Cape. It is very difficult for people who do not have a car to get where they need to go in a reasonable amount of time. I run the Family Pantry of Cape Cod and transportation to the Pantry is one of our largest obstacles.
- assisting communities with intersection improvements to accommodate new and growing housing inventory
- more safe sidewalks, bike trails. I would bike to work if there was a safe way...and maybe a shower at work ;)
- Some method of standardizing road use and public safety assets being put in place for road and bike races and events. Events in the summer create unnecessary traffic issues and almost all of my "close calls" while driving relate to these events. I have had two near tragic incidents on Route 6A where blind corners and oncoming traffic (large box trucks) have nearly resulted in injury or death to bicyclists. Many of the most popular bike and road races occur on our most narrow roadways during the peak of the season. I financially support and encourage many of the events and participants, but there has to be a better way to do this. Watching vehicular traffic cross double yellow lines on narrow Cape roads to

avoid bicycles or runners two or three wide has always concerned me and anecdotally I am observing that this seems to be more common each year.

- Affordable Rail and increased bus service to New Bedford and Providence for commuters
- your bridge options do not include congestion pricing. bike paths excludes route 28 from orleans to chatham. currently highly used by seasonal labor at night and totally unsafe.
- I strongly recommend a rotary at the intersection of Falmouth Road & Old Stage Road/Race Lane in Marstons Mills. This intersection is extremely dangerous!!!!
- I believe the Cape Cod Canal has outlived its usefulness. Modern GPS navigation and other 2019 technologies have made the hazards of round-cape ocean travel much safer. The new, enormous tankers and cargo carriers cannot (apparently) make use of the canal. It appears the drafts of these vessels is at least 27ft and the canal is only 32ft deep at best. From our home, we can see the outer-most green channel marker at the Sandwich end of the canal, so we can see what kind of traffic comes and goes through the canal. Except for POL barges, pushed by tug boats, we seldom see any other kind of large vessel. The occasion of a particularly large vessel transiting the canal is most often the subject of a photo in the local paper, it is so rare. My suggestion: Take all those rocks that are blocking the sand from replenishing the Town Neck Beach and put them across the canal above the Sagamore Bridge. Put a roadway on top of them. Do the same with those at the Bourne end of the canal and put them under that bridge. It would give both ends of the canal fantastic new marinas, eliminate the need for additional bridge traffic capacity. and the revenue generated by the Sandwich/Sagamore marinas capacity would more than offset the need for a dredge to keep a channel open to the ocean. The lake created by those rock barriers would be a perfect location for the Sandwich Regatta.
- The county should make a long term commitment to keep the public rest area open. Route 6A should have improved sidewalks or designated bike lanes.
- sidewalks bike lanes headed to bike path on major roads.
- Public-private EV charging station network; electrification of CCRTA
- Upgrade traffic signals to adaptive signal technology on major arterial roadways with congestion
- An extensive, inexpensive ride share program, if done well could lead to fewer cars/car ownership. Old people don't or can't drive, particularly at night. Why pay for car ownership, maintenance, insurance, operation and parking when (if) ride share is a phone call away?
- We need permanent counters to quantify bicycle and pedestrian traffic and make improvements for walking and bicycling a priority over motor vehicles. The bridge should only be rebuilt to add separated bike lanes and sidewalks - not to add more lanes that will just increase congestion. Our roads can't handle more cars - we need bus service and rail and more bike lanes and sidewalks.

- Regional coordination of the impact and efficiency of school transportation … including use of vehicles for other municipal uses ..
- Implementing hybrid and electrical vehicles
- Climate Change adaptation projects
- Please consider improving the parking situation at the Rte 6/132 Park and Ride: construct a two-level parking lot; create limits such as 1 week maximum, even if it means creating a pay to park system (fees could be tiered to favor day-trippers but increase dramatically to prevent extended parking over one week long)
- Reimbursement and incentive projects for those that utilize uber or lyft services when buses or rails do not go to the area.
- Expanding Rt 28 from the AirPort rotary to Willow St Increase bike lanes AND keep them SERVICABLE. I have tried to ride the Rt132 bike lane and it had crackcs/uneven pavement and branches blocking - Also the path along Race Lane need to maintain the paths we have. Also expand the bike lane further west on Race lane to connect the Danforth Recreation Cape Cod Airfield) area to the bike path. Many people use West Barnstable Conservation area to mountain bike but they must drive to the area because it is unsafe to bike on Race Lane/Rt 149 with no shoulder. Cape Cod's Economy is built upon our beautiful natural resources, we should everything we can to encourage bicycling and pedestrian friendly areas and minimize use of vehicles when possible. Building an integrated bike path Cape wide is exactly what we need.
- Greater access via new construction roads throughout Cape region - more high-speed access.
- Increased rail service between Cape Towns
- Increased use of all Cape Cod Rail lines for year round Freight and Seasonal passenger service as year round service would require subsidies and operate at a loss
- Don't just extend existing bike paths, give us more around town. You take your life in you hands walking, biking or driving on Route 149. Speed limit should be reduced and a bike path or sidewalk should be built to connect with the sidewalk across from Burgess Park and then connect to the bike path off exit 5. This would save lives and make it so much safer to walk to conservation land, the golf course, the airport and trails as well as give you a straight path all the way to Hyannis. Please! Please!
- Bike lanes!!! Please connect the whole Cape with a SAFE bike path. It will be great for our tourism.
- Commuter Rail to Boston from Hyannis with travel time that's competitive with drive time during rush hour; NOT geared toward tourist travel, but toward serving daily working professionals who live on Cape Cod and work in the city.
- Bike path in Marstons Mills esp. Rte 149

- Addition of plug-in electric vehicle charging stations in easy-to-access locations throughout the Cape. Conversion of public busses to electric power. Addition of bike lanes throughout Hyannis (many of the roads are not safe for cyclists).
- Addition of Bike Lane on Rte 149 and added sidewalk through Marstons Mills village.
- Sidewalk / bike path on Route 149
- With respect to bike path extensions, keep them off Route 6 and other roads. Typical bike-car problems are exacerbated by distracted visitor driving and idiot vacationer bike behavior. (It is nice for people to have fun, but remember that the environ is new/exciting and people may not behave the same on vacation.) With respect to bridges across the canals, I like the old ones and support maintaining them. I think that increasing the number of lanes onto the Cape would be whack-a-mole just shifting backup locations. I would understand and support adding lanes to LEAVE the Cape, but it would need to be done in a way that physically guarantees their use only as an exit path for heavy summer traffic, disaster evacuation, and alternate path when off-cape bridge lane work is underway. The only real change Route 6 needs is extending Easthams' 4 lanes as 4 lanes into Ptown, to improve emergency vehicle movement during the summer rush. (Or, say 3 lanes with 2 toward the hospital.)
- Fixing Route 28 in Cotuit between Santuit-Newtown and Route 130. Widening Route 149 for safety.
- As stated in the first paragraph, a double three lane tunnel
- Increased ferry options from Boston, Plymouth, Portsmouth, NH. Increased mass transit options (e.g. shuttles, ferries) to the Outer Cape.
- not share bike paths with cars bike paths along all major roads more traffic lights in high traffic areas such as turning left on major roads or rotundas
- Bring rail service back to Falmouth. It was reprehensible that the State allowed that rail line to be removed. Going to Woods Hole would be even better.
- Add a seperate lane with separation from bikers/walkers for small electric or solar powered trolleys along bike trails. Parking spaces at all intersections with significant roads. Route 6 Orleans to Provincetown two lanes with turn lanes and bike lanes especially for Stop & Shop workers who travel at night.
- Cape rail to Woods along with railtrail.
- Increased passenger train service to Hyannis with intermediate stops in Buzards Bay, Sandwich, West Barnstable, and Yarmouth near Exit 7. Restore passenger train service to Woods Hole to keep MV bound traffic off of Bourne roads.
- Extension/reopening of the Falmouth rail branch to Falmouth for starters, then to Woods Hole.
- Rail service to Falmouth.
- Increased rail speed on cape

- Rail service to Falmouth with shuttles to Woods Hole ferry.
- Meaningful efforts to reduce summer-time congestion on Cape Cod. These could include tolls (eg on the access ways to the bridges) with revenues used to support public transit options such as passenger rail service to Boston and better bus service. People living on Cape Cod are isolated from the rest of the state, just like people in the Berkshires area. This needs to change.
- Any project that would increase side walks and bike paths!
- Route 132 median from Phinneys Lane to Airport rotary
- Fields are left blank as I am unable to load the form completly
- Barrier on 6 from Orleans to P-town with occasional uturn lanes.
- more multi-modal or shared use paths along busy local roads and state routes 28 and 151
- Rail service from New York City
- Widen "sidewalks" to accommodate bicycles and make sure they continue unbroken. I'm particularly thinking of the path along Rte 134 in Dennis which disappears at the Rte 6 interchange. to travel around that requires jogging over to Bass River Rd which has narrow & intermittent sidewalks.
- Widening route 28 from Hyannis to Falmouth to add more car lanes
- New York to Cape Rail Service Passenger rail service to Falmouth to connect with Woods Hole buses
- Bicycle infrastructure throughout Hyannis and surrounding villages
- More rail, fewer buses! It's more fun and removes congestion from roads. But in the absence of trains, more buses would be good.
- Center turn lane down 28 through Yarmouth
- Extensive bike network with facilities of some sort on every road. Cape Cod is very similar to the Netherlands in that they are both flat, which makes it easy to cycle.
- Exit 6b off Rt 6!!! Add a highway exit at Independence Park in Hyannis for quicker access to main shopping district directly from the highway, bypass Willow St.
- Bicycle/pedestrian bridges in Wellfleet & Truro harbors where the railway was.
- Relocate the Barnstable Airport to Otis and close it. That Hyannis airport is poorly located, underused, and ties up thousands of people in traffic per day to benefit a few dozen people. Improving the lanes around the airport doesn't change the fact that this airport that nobody uses is the problem that is forcing all of these bottlenecks.
- On-cape light rail between towns (Falmouth to Hyannis to Wellfleet, etc)
- Better public transportation to make it usable for people that need to be at work at specific times. Easier access to communication about public transportation schedules.
- Exit 8 Interchange improvements.
- Route 6 Eastham reconfiguration.
- Amtrak from Hyannis to Providence RI.

- Eastham lane reductions (rt 6)
- Road diet Route 6 in Eastham; sidewalk Route 6 Eastham oceanside; road diet north truro - provincetown with bike accommodations both sides; regular bus service on Route 6A orleans to Barnstable
- Expanded RTA service on Sat and include Sunday service on key fixed routes..
- Route 149. Sidewalk or bike path Areas need widened and visibility increased especially on the curves. I like to walk but it is dangerous to leave my immediate neighborhood.
- PROVIDE AN ALTERNATE ROUTE TO RT 28, FROM YARMOUTH TO WOODS HOLE.
- As mentioned, "last mile" extension of bike trails to commerce centers.
- Connect existing bike paths to each other from Bourne to P-Town
- Sidewalks and bike lanes on Race Land and Rt 149 in Willimantic Drive area. Connect rail trail to Barnstable/Sandwich.
- electric car charging stations.
- definitely extend the hours of the bus service to night hours, at least during the summer. use more signs/messages to alert drivers to cyclists and pedestrians, as well as educational PSAs on tv and radio wider lanes, shoulders, street lights are NEEDED across the Cape to make it safer for cyclists and pedestrians, including seasonal workers, like J-1 students. Too many crashes occur and community has been doing a lot to educate the students, provide bike lights, etc. Drivers (both residents and tourists) need to learn to be more aware on these roads. lights, wider shoulders, sidewalks are needed. Best solution is bike lanes on roads like Route 28, route 6A.
- Would like to see a ferry service out of Bourne/Sandwich to Boston
- Would love to see more Ferry Service from Boston to Sandwich and Hyannis and from New Bedford or Providence to Buzzards Bay/ Falmouth in the summer. Better bus service so people can day trip without their cars
- Replacement of the route 6 bridges over the Bass River
- Leave exit one open for local traffic. Bourne and Sandwich residents suffer congestion every weekend, unlike other towns, and deserve the availability of a way to more easily access areas of their towns divided by the canal. In addition, the Cape does not need to be further urbanized. South Boston once looked like the Cape. Keeping our semi rural seaside character is vital to our economy and preserveing what makes this region unique. Every road "improvement" erodes that character.
- Bridges need wider lanes. I fear for my life driving over them. Better bus or train options for those commuting to Boston would be great. Extending the bike path from falmouth to the canal will help with all the bikes on dangerous roads. Thanks for the survey!
- May support replacing bridges with same number of lanes - but wider with bike/walk if number of lanes on the bridge is not the cause of congestion. Improve traffic pattern at Bourne rotary with direct access to Sandwich Road rather than a major reconstruction.

- The drainage on route 6 is awful, very dangerous!
- sidewalks
- Belmont Circle traffic improvements
- Double barrel Route 6 from Exit 11 to the Orleans rotary
- New Bridges with capacities for vehicles thru 2070 or longer
- Reconfiguration of MacArthur's Blvd from Bourne to North Falmouth. Connector road from MacArthur's Blvd to Sandwich Road. Connection through Joint Base Cape Cod from Rt 6 to Rt 28.
- Improvements to Route 28 from Mashpee to Hyannis
- Redesign Rte 6 to remove side burms and improve drainage and durability. Install Jersey barriers on Rte 6 rather than current yellow posts. Redesign Rte 6 to reduce bottlenecks in Harwich/Brewster area. Redesign/eliminate Rte 6 rotary to improve flow and access to Orleans. Public communication to reduce litter on Rt 6 Improvement to brush and clearing Rte 6 on all access areas-way overgrown. Improve traffic flows on Rte 28 by redesign and reducing lights in key areas of Hyannis,Willow St., Winslow Gray in Yarmouth. Replace Rt 6 Bridges which impede water flow/exchange for major areas.
- Cleaner road ways! My God they're filthy! Trimming trees picking trash. Siding the shoulder on the suicide part to allow better view of ambulance service coming up the road and being able to move over safely. Better road surfaces. Rate 28 is a mess. And Rte 6 is not much better. Additionally better biking routes. I love the bike trails and use them. I would mind seeing a bike trail down a power line. As a home owner with an easement for a power line, I might not mind one to give to a bike trail. But it would be better if they could widen Rte 28. Then you could access the stores and houses along the way. Driving on Rte 28 at night when all the workers leave stop and shop is a hazard to those people who wear dark clothing and bike with no lights on!
- Evaluating the Buzzards Bay rotaries, replacing rotary with lights. The west end rotary has many accidents or near accidents because cars speed from Wareham and aren't aware they are approaching a rotary.
- Is there a scenario where you could have a website with 'real time' traffic flow so people can make an informed decision on when it might be best to travel on Rt. 6?
- The metal barrier at Exit 9 going east needs to be made more visible. It is difficult to see in the dark / inclement weather. More reflectors, reflective strips, reflective paint- something! This is a huge detriment to safe travel, particularly going west. The 4 lanes to exit 9 are adaquate As are the 2 lanes going east. What is problematic are the bridges and people driving too fast at interchanges. The yield signs are ignored. Perhaps stop signs would be more effective at the end of each ramp to at least alert the vehicle coming into Rt 6 traffic they need to wait and not just merge.
- Boston boat service to Yarmouthport and Orleans

- More buses, more off season buses
- Bike and walking trail over the Cape Cod Canal…. really think this will have more that 3 users ad when it's warm and one or two a month in the winter…. Use the railroad bridge at least to Hyannis, restoration of tracks to Woods Hole would remove many cars that are just parked all over town in ever expanding parking lots…
- Passenger rail service from/to Boston. Car train service to remove cars from roads.
- Maybe a year-round commuter rail so people who commute to work on cape from off-cape locations such as Wareham or Plymouth and even Boston could take a train rather than drive every day, which could cut down on every day traffic.
- Make Hyannis rotary like Orleans rt28
- Intra-cape ferry service, e.g. Sandwich Harbor to Barnstable Harbor to Provincetown, or Falmouth Harbor to Hyannis to Harwichport to Chatham. (2) Intra-cape rail connecting Buzzards Bay to Hyannis via DMUs, with intermediate stops in Bourne, Sandwich and Barstable.
- Bring the commuter rail to the Cape! At least closer than Kingston. Would get more commuters living on the cape.

QUESTION 10 – BUDGET CHALLENGE

Recognizing that a limited amount of funding is available to address the transportation problems in the area, respondents were asked to indicate their level of support for the following strategies. For each strategy respondents could assign from 1 to 5 stars.

Level of Support for Strategies

STRATEGIES CATEGORIES	LEVEL OF SUPPORT (STARS)
Roadway projects to correct safety issues	4.15
Roadway projects to reduce congestion/improve air quality	3.91
Roadway pavement maintenance	3.75
Bicycle/pedestrian improvements	3.65
Transit service	3.67
Intelligent transportation systems (e.g., travel time message boards, real-time traffic monitoring)	2.89

OTHER COMMENTS

A final text box was provided for respondents to provide any additional comments or suggestions. Responses included:

- We should have a train system.
- We should be making transportation policy decisions that put climate change at the very center of every decision. Repairing or expanding roads and bridges in order to allow more cars to drive onto the Cape, and drive around the Cape, is exactly the opposite of what we should be doing. I am skeptical of plans to improve roadways to reduce congestion and air pollution. If we are encouraging more driving, then we are not solving the problem. We must electrify our fleets and vehicles, and get the energy to power those vehicles with local, renewable energy. Thank you for the opportunity to comment!
- Thank you.
- Perhaps a more visible demonstration of "involvement" with the objectives of the RTP could be made via local news media on a regular basis -
- I have never taken a bus on the cape. My only contact with bus service has been through Google maps. It gives me the amount of time to reach my destination via public transit or my car. The amount of time for public transit would be prohibitive for anyone except someone like me who is retired. And I wouldn't do it because it is torture. Can there be bus routes established within smaller sections of the cape? Can there be express routes and local routes?
- Thanks for this important work for all Cape Codders, today and future generations.
- The main arterial highway on Cape Cod needs major capacity improvements. Let towns decide the level of service on local roads, but keep the main artery free flowing in all conditions.
- I have friends and family members who do not have easy access to computers. I encourage you to continue to allow individuals to complete paper copy surveys and comments for inclusion. I encourage you to consider that there is a disproportionate percentage of the "transit-needing" population who can not or will not complete electronic surveys, but who's input is truly essential to the success of traffic and transportation planning.
- Wean people off their car by offering sustainable, reasonably cheap public transportation with increased frequency of scheduled runs.
- Thank you
- Thanks for the opportunity to participate in this discussion and planning process
- Preserve Cape Cod for what people are here for.
- Thank god you are doing this work. Thank you!
- In addition to Cape Cod residents, virtually all traffic with destinations in Barnstable, Dukes and Nantucket counties, travel over the canal bridges. Because traffic monitoring apps

guide motorists to take alternate routes during peak periods, it quickly clogs all area surface roads as well as the main arteries (6 & 28). Unfortunately, the relatively narrow rural roads in Bourne must be shared by motor, bike and pedestrian traffic. Extension of the Shining Sea Trail to the Canal service road will greatly reduce this hazard. I appreciate our voices being heard.

- There is no sense making a wider bridge over the canal when there are two lanes on either side of the bridges. That means two lanes become four on the bridge, and then back to two lanes after crossing the bridge. Traffic is still backed up on the roads, not just on the bridges.
- Please keep momentum up to fund and replace the Canal bridges and make adjoining roadway improvements.
- Hurry. Every day we wait costs a fortune
- Encouraging more walkable, bikeable communities would help reduce carbon emissions and improve health, two of our most pressing problems.
- I appreciate the listening session. I was told about it through my church, I would not have known otherwise. I know this is very difficult but trying to get the message out about your meetings is critical. I have sat through several meetings with multiple social service agencies this year that all called out their concerns with transportation; however, I did not see one of my counterparts at the meeting. chm
- tolls I would support if they were not imposed upon residents
- The needs of year round working professionals who often need to go off cape for opportunities should be a priority at least as much and probably more than tourist travel needs.
- your intelligent solutions does not consider harnessing tech for speed control, congestion pricing/use management
- Dangerous intersections such as the Falmouth Road / Old Stage Road should take priority over resurfacing roads $ enhancing roads to accommodate bike lanes etc. My home is very near this dangerous intersection and I try to avoid it at all costs. FYI - Cape roads are NOT DESIGNED for bike travel. Make motor vehicle drivers safety a priority!!!
- Please see my comments about closing off the Cape Cod Canal (above).
- I was raised on Cape Cod. You have your hands full. Godspeed to us all.
- Thank you for the opportunity to provide feedback in this process. I'm split between Boston and Dennis now, but plan to increase the number of months I live on Cape in the next couple of years as I approach retirement.
- Transportation funding should focus on cutting emissions across the transportation sector, with any investments focused on vehicle transport requiring investments in non-emitting options: electric transport, bikes, etc.

- Surveys show that transportation is the number one issue for the elderly. The Cape has lots of elderly and long dark winter nights and transportation infrastructure that is car centric. It must be changed to be people centric.
- Please look at funding water transportation options - water taxis (for people and bicycles) between the towns on the bay side could reduce a lot of congestion on Route 6. Also, please do some public info sessions on the Outer Cape.
- I strongly support this type of outreach and suggest more widespread dissemination of the same
- keep old canal bridges and use for bike & ped and maybe transit
- Improvements to local and regional transit such as buses and trains could positively impact the ability for younger and older people to live in our area, considering how hazardous walking, cycling and driving can be for those age groups.
- "TO: Cape Cod MPO FR: Cape Cod Chamber of Commerce DT:February 14, 2019 RE: RTP 2020 Update The Cape Cod Chamber of Commerce would like to go on the record relative to the 2020 Regional Transportation Plan update. The Chamber believes that the Cape's economic health will depend on three major components; 1.) Housing that is affordable to our workforce, 2.) transportation systems that work for residents and guests, and 3.) jobs. In order to balance our demographic composition, we must continue to build communities that attract and retain younger residents and families. We need to create employment they want, and provide a diverse base of employment. The Blue Economy initiative is strving to do just that – but requires government at all levels to provide foundational sysems such as wastewater to support housing, broadband and transportation to support jobs, high quality education to support families, public safety and health care to support all. On the transportation front, we have been hearing from employers for the need to fully develop bike lanes and bike ways that will allow access to work, and carbon-free transportation. While our effort to build off-road bike paths is comendable and goes a long way to promote our region's health and a vibrant lifestyle, we are lacking sufficiently marked lanes along current roads to encourage bicyclists to connect to work, school and services. We also support the establishment of a broad network of charging stations to accommodate electric vehicles. We support road development to support artificial intelligence navigation aids. And we suggest more alternative fuel stations (e.g. natural gas) as able. And we believe that ride sharing (i.e. Uber and Lyft) will facilitate mobility among our residents of all ages and allow us to become more car-free in terms of ownership and expense. To fully deploy ridesharing apps, stronger broadband service is needed. On Cape Cod, we have an opportunity to encourage more water taxi movement around the Cape and southeastern Mass. We also have a rail system that is under-utilized and could boost our economic welfare with commuter options to and from the Cape and Boston. "
- Looking forward to your vision ahead

- Improved bicycle infrastructure and rail transportation to and from the Cape are incredibly important.
- Think big and get it right: - Support for additional runway length at Barnstable Municipal Airport aimed to attract larger aircraft, with greater range (ie- airlines to Florida) - Reconfigure regional transportation center - move the RTA to abut the airport and build a multi-level parking garage at current RTA site, provide connectivity between airport terminal/parking, new train/bus RTA site, central parking garage, downtown and ferries via bus shuttle service. This will: provide one primary central parking location, one central regional transportation hub, provide better highway access to regional transit, reduce congestion by moving trip generation related to RTA/airport visits to one location North of Route 28/132, additionally the rail crossing on Route 28/132 would be removed, lessening congestion. Simultaneously, widen Route 28/132 from the rotary to beyond the Yarmouth/Barnstable town line would significantly reduce congestion and improve resident/visitor experience of this area. Finally, widening Willow Street from Route 6 to Route 28/132 will improve access to downtown Hyannis and the new transportation hub significantly. This major reset of the area will significantly improve access to transportation and the Mid-Cape area.
- The Cape needs to expand all possible transportation options to reduce traffic congestion be it by Rail, Air, High Speed ferry, Roadway / Bridge replacements, Pedestrian / Bicyclist lanes or Path's
- Thank you for giving us the opportunity to comment.
- Please address safety issues on Rt. 149 which is a narrow winding road overused by trucks cutting through from Rt 28 to Rt 6, often traveling partially in the oncoming line of traffic. A number of safety improvements are needed. I hope this survey will allow me to point those out and suggest solutions.
- My wife was almost hit biking on 149 by a local contractor texting wile driving on 149. The road is very narrow and winding yet it is a major connector between Route 6 and Route 28. There is little to no margin of error opportunity. During the week, there is a lot of truck traffic and during the weekend a lot of vehicle travel, particularly in the summer but extending year round depending on the time of day.
- Please sidewalk / bike path on Route 149 so it is safe
- I would like to add a project to the list although it is not major. Add a walking/bike path around the perimeter of Cape Cod Airfield in Marstons Mills to provide a safe alternative for residents to exercise/travel in that high traffic area of Race Lane and Route 149. It's an extensive town-owned property that is minimally used by private pilots and allowing residents access to the perimeter for a safe, healthy mode of exercise/travel would be a huge benefit!

- I also think Route 6 from Dennis east should be 4 lane. Too many accidents and congestion.
- A tunnel from the cape cod aggregates sand pit to camp Edwards, it is the perfect spot. See my first paragraph
- One thing that is very lacking is for handicapped people to get off the Cape for recreational purposes. None of the bus companies have lifts so people in wheelchairs or that cannot climb the stairs can travel.
- Cape Cod and the Islands are such a great asset to the citizens but it is becoming increasingly impossible to get there and enjoy it. Another option in the not too distance future is Southcoast Rail service to the New Bedford Pier to connect with the ferry there but that station has been eliminated. Could a station be built on the pier itself?
- A trolley service on a separate lane from Boston along Route 3 on side of existing road to Hyannis Transportation Ctr and Falmouth. A system to manage and provide maximum safety of airborne vehicles separated by altitude and requiring anti-accident and programmed route technology with a strict set of regulations forbidding flights over neighborhoods, schools, beaches, etc. Aproved structure roofs and parking areas for passenger drone takeoff and landings.
- Please consider restoring passenger train service to Woods Hole and add a station near I-195/I-495/25 with a large parking lot where the tracks cross I-195. Keep off Cape people off of Cape roads on their way to both MV and Nantucket.
- Survey did not work properly as I could not fill in many fields.
- wider shoulder or path along Quinaquisset Ave, Route 28 and safe method of crossing legs of Mashpee rotary to access Mashpee Commons and other local services
- I once lived on Cape Cod and still visit from time to time.
- I try to ride my bike almost everywhere I go (including groceries, dump runs, church) when temperatures are above 32 & it's not dark or raining. Many people have said I inspire them, but they're afraid because they don't think it's safe. I've been to the Netherlands where bicycle is king...is it possible here? Jokingly I imagine a park & ride lot at the bridges and no cars allowed here. A pipe dream I know LOL
- More bicycle infrastructure!!!!!
- I want a third bridge with tolls! The fact that there are currently no tolls is ridiculous. Boston charges for their bridges and so should we. People who use the bridge to commute every day should pay as well as vacation-goers. I would happily pay every time I cross the bridge because it's in everyone's best interest. I guarantee that no one wants to pay for it and it would be deeply unpopular, but it's necessary. The bridges are our only way out and to not have a toll on them is irresponsible in the long term. We need money for infrastructure maintenance and repair; a toll is the clear way forward. Maybe to make it more palatable to locals, have a reduced commuter rate?

- Follow American Society of Civil Engineers recommendations, ignore the aesthetics
- Do not significantly increase car volume. The cape is getting too congested as it currently stands.
- My #1 priority is getting Amtrak (or other rail) from Hyannis to Providence and/or Boston. That is my highest priority wish. After that, bike lanes/paths that would keep us all from killing the J-1s that ride around in black clothing in the dark on Rt. 28 in Yarmouth or on 6A. I'd love to ride my bike to work but 6A in Yarmouth Port is too dangerous -- no shoulder in many spots. After that, bike lanes/paths that provide access to the existing bike paths (for example, though I live very close to a bike path, I can't get there via North Dennis road because of the lack of shoulder. But mostly, please get us rail service. If there's a committee to work on getting rail service to Hyannis, I'm volunteering! Email me!
- Flint Street in Marstons Mills is dangerous. Drivers zoom through here all the time. There are no speed limit signs or slow signs or children signs. The tree at the edge of our driveway has been crashed into three times. (442 Flint Street). Also the turn off of route 149 onto Flint is extremely dangerous. When we try to walk our dogs on Flint Street,we take our lives in our hands. Please help!
- I live in Marstons Mills As a village center only now the issues are being addressed. But with the route 149 issues the safest way to get there is a car. Trucks are frequently left of center. Not sure if that is poor driving or problems navigating a truck on that road
- THINK OF RTA AS MORE OF A RIDE SHARE (UBER) OPERATION WHERE WITH AN APP ONE COULD SCHEDULE A RIDE. PROVIDE ALTERNATIVE ROUTE TO RT 28 FROM YARMOUTH TO WOODS HOLE.
- Something has to be done and now.
- Stop wasting time and money on these boards and surveys...Repair bridges as they are....
- Time is of the essence...
- Would like to see scenic highway surface leveled to prevent hydroplaning/accidents.
- While the canal bridges are a couple of literal hurdles to clear, for the Federal government, all of the roadways into those bridges need to be examined and well though-out. If all of the roads to the bridges and along the canal were working well or were under-utilized to their design, then we could blame the bridges as the last piece to the puzzle. But that still isn't the case.
- You can’t reduce traffic with out having an alternative. The bike, rail and buss service must be made available first! Then improve road ways . Traffic will increase as population will increase. That’s a no brained! I’ve lived here all my life and can’t belive how much has changed in the past 60 years! Also don’t forget getting around by boat. I’d rather boat over to Harwich, Orleans and Chatham then drive! Get a bite to eat at a resteraunts and return. I do this as do many other people I know. We are surrounded by water use it! For transport! With bettter town landings and better Mariners.

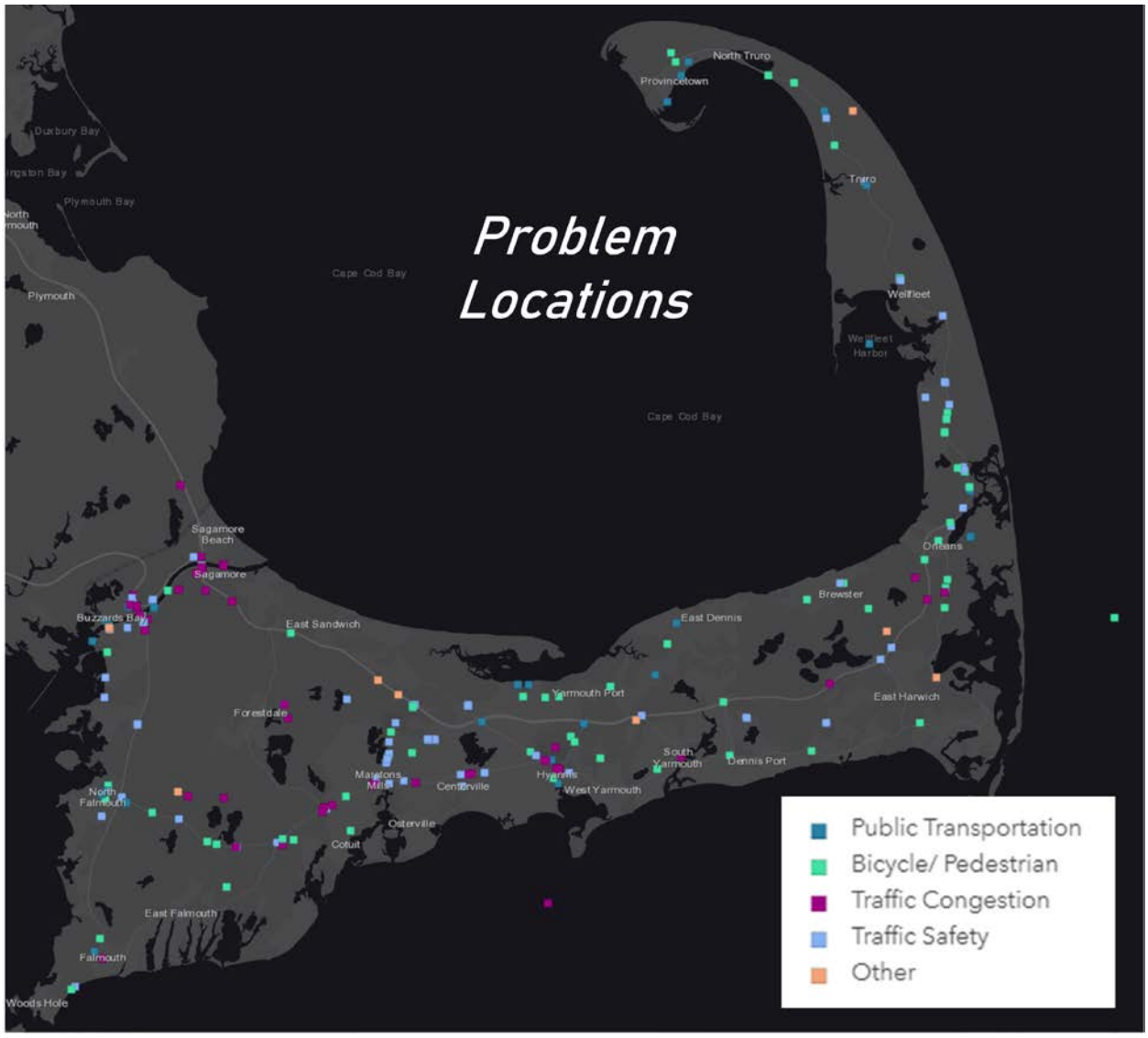
- The Bourne Bridge replacement is needed, no question but has any consideration been given to other bridges being built? From New Bedford to Falmouth. From Plymouth to Hyannis. From Boston to Providence. Living in BBay the traffic is horrendous during the summer some relief by redirecting traffic patterns are vital to our lifestyle. What about a ferry service for cars from Boston or Hingham to Hyannis or Providence. That alone would benefit air quality and traffic.
- Since the roads tend to be a seasonal problem, the vacationers need to have more patience and less entitlement on our roads.
- More off season buses. Bridge gaps in bus service; for example, leaving Provincetown by bus in the afternoon - 1, 2, 3pm, then a 3 hour wait for next bus at 6pm
- Bourne need to live with choke point congestion every day… maybe a mid canal express bridge to help Bourne and serve the mid, outer Cape and the Islands
- Lives on Cape my whole life except past 2 years but I work on the Cape and my parents live in Sandwich. The bridges need to be updated. I would support new bridges to be built, maybe even a third bridge that would be for residents/employers only.
- There should be an interconnected grid of transit, including bus, rail and ferry, conveniently connecting every community activity center on Cape Cod.
- Putting a toll on the bridges in Bourne is an outrageous concern to the people of Bourne. Our town is divided by the canal, our children cross those bridges for school. I currently drive over the bourne bridge 3-5 time a day simple to bring my child to school. Do not make the people of Bourne pay for a new bridge when we gain nothing in tourism once on cape side.

SURVEY MAPPING EXERCISE

Following the survey questions, respondents are taken to the mapping exercise. Cape Cod Commission GIS staff prepared an online mapping tool to help respondents identify specific locations under the following classifications:

- Traffic safety problems
- Traffic congestion
- Bicycle/Pedestrian trouble spots
- Other issues that impact daily transportation needs

Identified Problem Locations - RTP Online Survey



The responses gathered in this exercise are being formatted into an online map that will be shared with local Departments of Public Works Departments, MassDOT, the CCRTA, and other agencies. Written comments included in the mapping submission are as follows:

- Barnstable - Bicycle/ Pedestrian - Route 132 (Rotary to Mall area) missing bike/ped accomodations
- Barnstable - Bicycle/ Pedestrian - Lack of sidewalk
- Barnstable - Bicycle/ Pedestrian - the entire length of 6A
- Barnstable - Bicycle/ Pedestrian - Corner of Main St and Center St light Hyannis. This is a dangerous intersection for all
- Barnstable - Bicycle/ Pedestrian - No bike lane or shoulder available to connect residents to recreation area without driving

- Barnstable - Bicycle/ Pedestrian - Crosswalk without stop signs or signs reminding drivers that it is state law that they must stop for pedestrians in the crosswalk. Nobody stops and most drivers speed and itΓÇÖs very dangerous to cross.
- Barnstable - Bicycle/ Pedestrian - Yarmouth to Mary Dunn Rd.
- Barnstable - Bicycle/ Pedestrian
- Barnstable - Bicycle/ Pedestrian - route 149
- Barnstable - Bicycle/ Pedestrian - This section of Putnam Avenue is the perfect location for a walking/bike path. Many bikes and a very high speed road are a dangerous combination. Plenty of land for a path to keep pedestrians and bikes off the road.
- Barnstable - Bicycle/ Pedestrian - Any reconstruction of route 28 must include provisions for a bike path. There should be a bike path parallel to route 28 (not a bike lane) from Falmouth to Orleans. Too many missed opportunities to get around on a bike.
- Barnstable - Bicycle/ Pedestrian - Lack of bike path
- Barnstable - Bicycle/ Pedestrian - The bicycle pedestrian trail only exists in one direction from this rotary. If it's going to go around the rotary (which is dangerous), it should at least provide somewhere to go rather than just ending
- Barnstable - Bicycle/ Pedestrian - Route 6A Yarmouth - Barnstable unsafe for bicycles. Suggest RTA provides shuttle bus in season so bikes can get to locations like the county complex - court area.
- Multi - Public Transportation
- Barnstable - Bicycle/ Pedestrian - Flint Street and route 149 are very dangerous...speeding cars and trucks and motorcycles.
- Barnstable - Other - Repave
- Barnstable - Public Transportation - Better use of Barnstable airport in our regional plan, Let's add a Bikeport to the airport and allow people to rent Bikes here and ride them through town.
- Barnstable - Public Transportation - Service too infrequent
- Barnstable - Public Transportation - We need regular daily rail service from Hyannis to Providence & Boston.
- Barnstable - Public Transportation - Increase Public Transportation from Hyannis to Buzzards Bay, MA would help many
- Barnstable - Public Transportation - Intra-Cape ferry, connecting Barnstable Harbor with Sandwich and Provincetown
- Barnstable - Public Transportation - Intra-Cape ferry service connecting Falmouth, Haynnis, Harwichport and Chatham
- Barnstable - Traffic Congestion - Need for opticom at signal
- Barnstable - Traffic Congestion - Light activation needed for left turn from rt 28 (Mashpee to Hyannis) in left turn lane.

- Barnstable - Traffic Congestion - From rt 149 to rt 28 towards MASHPEE, need timed light to allow traffic to merge onto rt 28.
- Barnstable - Traffic Congestion
- Barnstable - Traffic Congestion - Fixing Willow Street/Yarmouth Road and Rout 28 intersection solves 99% of the congestion problems at the Airport Rotary
- Barnstable - Traffic Congestion
- Barnstable - Traffic Congestion
- Barnstable - Traffic Congestion
- Barnstable - Traffic Congestion
- Barnstable - Traffic Congestion - Very bad intersection. Causes unnecessary backups even when there is no traffic.
- Barnstable - Traffic Congestion - Daily congestion due to light timing and cross-traffic turns.
- Barnstable - Traffic Congestion
- Barnstable - Traffic Congestion - Seldom able to travel the speed limit.
- Barnstable - Traffic Congestion - Airport rotary is horrible and unsafe in the summer especially
- Barnstable - Traffic Congestion
- Barnstable - Traffic Congestion
- Barnstable - Traffic Congestion
- Barnstable - Traffic Congestion - Seasonal traffic congestion on Route 28 between Centerville and the Mashpee Rotary.
- Barnstable - Traffic Congestion
- Barnstable - Traffic Congestion - A corridor study was performed by the Cape Cod Commission and needs to be implemented
- Barnstable - Traffic Safety - Roundabout for old stage/race/old falmouth, visibility off old falmouth is poor.
- Barnstable - Traffic Safety - Confusing intersection with lack of bike/ped accomodations
- Barnstable - Traffic Safety - Please change the left-hand lane at Route 28 Westbound approaching the intersection of West Main Street, Hyannis to a Left Turn only lane. As it exists it creates and acceleration/passing lane that ends in a bend. This is very dangerous.
- Barnstable - Traffic Safety - Because of the shrubs obstructing vision, and people making a left hand turn onto Oak St. from 132, the intersection of Oak Street, 6A, and 132 iis extremely dangerous, especially for those in smaller cars.n Barnstable
- Barnstable - Traffic Safety - Visibility coming onto Old Stage Rd at Oak St very poor.
- Barnstable - Traffic Safety - there are accidents weekly
- Barnstable - Traffic Safety - Suggest a Rotary or Traffic Lights forIntersection of Falmouth Rd. & Old Stage Rd

- Barnstable - Traffic Safety - West. Distracting signage on a corner property...majority of which has been there for at least two years...many accidents as per the police, etc.
- Barnstable - Traffic Safety - accidents seem to occur here frequently
- Barnstable - Traffic Safety - Many motorists enter the airport rotary at high speeds and do not follow rotary traffic laws. My suggested solutions include: institute a low speed limit within the rotary; introduce flashing lights to control onboarding into the rotary
- Barnstable - Traffic Safety - There are only 3 stop signs at this 4-way intersection which creates a dangerous situation for drivers, cyclists and pedestrians. Adding a 4th stop sign and clearly marked stop lines should alleviate the problem.
- Barnstable - Traffic Safety - The on-ramp at Exit 5/Rte 6 westbound is too short.
- Barnstable - Traffic Safety - The on-ramp for Exit 5 / Rte 6 Eastbound is too short.
- Barnstable - Traffic Safety
- Barnstable - Traffic Safety - Pedestrian Bike Safety Point , seen people hit here, sun gets at a bad angle, add a crosswalk or a flasher to alert drivers to bikes/pedestrians
- Barnstable - Traffic Safety - this is the first of several curves where trucks routinely come around the corner partially in the oncoming lane. Suggest rumble strips. Extremely steep embankment around the curve recommend road side barriers.
- Barnstable - Traffic Safety - This S-curve is extremely dangerous. Vehicles veering into the lane around the curves. Water congregation. Recommend Rumble Strips
- Barnstable - Traffic Safety - near Burgess park grading is wrong and deep water congregates. Especially dangerous when turns to ice because of the curves.
- Barnstable - Traffic Safety - Speeding traffic on 149.
- Barnstable - Traffic Safety - This stretch of route 149 is very dangerous. Speed and roadway width contribute to many close calls. add in distracted cell phone use and we can't be far from a fatal head on collision here. The traffic counts must be much higher now than 10 years ago
- Eastham - Traffic Safety - Route 6 in Eastham, Route 132 in Hyannis, MacArthur Boulevard in Bourne
- Barnstable -
- Bourne -
- Barnstable - Traffic Safety - Route 132/Oak Street/Route 6A in Barnstable
- Barnstable - Traffic Safety - dangerous and difficult to turn left in the afternoon here
- Barnstable - Traffic Safety - Need a rotary here to alleviate problems with speeding and traffic backups turning left
- Barnstable - Traffic Safety - This intersection is a complete disaster and it's unclear how vehicles are supposed to move through from certain directions. There are blind spots from most of the lanes in most directions.

- Barnstable - Traffic Safety - Rte 149, between the rotary (golf course) and Rte 28..! This road is very narrow & curvy... vehicles are found to be speeding, resulting into ΓÇ£Left-of-CenterΓÇ¥ and near head-on-crashes!
- Barnstable - Traffic Safety
- Bourne - Bicycle/ Pedestrian - Lack of sidewalk
- Mashpee - Bicycle/ Pedestrian - We do not have enough! Having more bike paths/ped walk ways is extremely important in suburban-type areas. There should be pedestrian walk walks/bike paths AT LEAST from the end of Quinnaquissett Road in Mashpee to Center and lengthen on 151.
- Bourne - Bicycle/ Pedestrian - Shining Sea Bikeway Extension
- Bourne - Bicycle/ Pedestrian - Railroad crossing needs signalization to warn Pedestrians / cyclist's of Train approaching / currently there are no signals at this location
- Bourne - Bicycle/ Pedestrian - RR signals by Railroad bridge need crossing gates installed at this location to keep cyclist's / pedestrains away from passing train traffic / people are too close to tracks
- Bourne - Bicycle/ Pedestrian - RR Signals need to installed at RR crossing to warn Pedestrians /Cyclist's of train approaching as there are none at this location
- Bourne - Bicycle/ Pedestrian - Too difficult to cross the bridge.d
- Bourne - Other - There is a planned sidewalk plan at Belmont circle that will in all likelihood be torn up in 10 years.. I would rather that money be spent to reconfigure the circle.
- Bourne - Other - construct a Rail Wye connection at Canal junction so Canal Railroad bridge won't have to be lowered for on Cape rail traffic. This would result in less wear & tear on the bridge , minimize maritime traffic disruptions , better utilization of Rail use
- Bourne - Other - Construct Railroad Wye configuration at Canal junction so Railroad bridge won't have to be lowered for on Cape Railroad traffic resulting in less Canal maritime traffic disruption
- Bourne - Public Transportation - Increased Rail service to Boston for residents
- Bourne - Public Transportation - Expand use of Railroad bridge to use Cape Rail lines for Freight and passenger use
- Bourne - Public Transportation - Locate Cape Flyer Platform behind Gallo ice arena in Bourne as it has large parking areas and requires only a platform to be built
- Bourne - Public Transportation - It would be great to have a commuter rail that goes to Boston.
- Bourne - Public Transportation - Locate Rail platform behind Gallo ice arena in Bourne for Scenic / Cape Flyer / future commuter passenger RR service
- Bourne - Public Transportation - Intra-Cape DMU rail service between Buzzards Bay and Hyannis, with intermediate stops in Bourne, Sandwich and Barnstable

- Bourne - Traffic Congestion - Route 28 from Hyannis to Mashpee curing commute hours and Route 151 from Rte 28 interchange in Falmouth to Mashpee Rotary, particularly during summer season
- Bourne - Traffic Congestion - Both Bridges
- Bourne - Traffic Congestion - Close Exit 1C to traffic (except emergency vehicles, buses)
- Bourne - Traffic Congestion - Bridge replacement with expansion
- Bourne - Traffic Congestion - Sagamore approach should not be constructed to one lane
- Bourne - Traffic Congestion - Consider Florida-t at market basket light. Would allow cars and trucks not need to accelerate from dead stop on hill.
- Bourne - Traffic Congestion - Obviously the bridges and route 28 during the May to September time period are congestion issues. The map is too temperamental to indicate that.
- Bourne - Traffic Congestion - Sagamore Bridge should NEVER back up. Flx it
- Bourne - Traffic Congestion - Bourne Rotary is difficult to navigate and made worse by traffic app that direct motorists to rural surface roads as a means to bypass the back ups on the main artieries.
- Bourne - Traffic Congestion - Bypass road
- Bourne - Traffic Congestion - Need a ramp directly onto Route 25 from Route 6
- Bourne - Traffic Congestion
- Bourne - Traffic Congestion - replace Bourne Bridge
- Bourne - Traffic Congestion - replace Bourne Rotary
- Bourne - Traffic Congestion - Replace Sagamore Bridge
- Bourne - Traffic Congestion - move Rte 25 off ramp exit to Buzzards Bay back 1/2 mile from Bourne Bridge so vehicles can exit earlier to get out of Bourne Bridge bound traffic
- Bourne - Traffic Congestion - eliminate westbound on-ramp
- Bourne - Traffic Congestion - Route 28 north in Bourne along the MacArthur Boulevard,
- Bourne - Traffic Congestion - Travel into Cape Cod if travelling via Bourne Bridge is the beginning of Traffic Congestion, additional lanes and/or additional bridge could releive some of that congestion.
- Bourne - Traffic Congestion - Scenic Highway into a rotary that also feeds Main Street Buzzards Bay, and an on-ramp to go over the canal, is all too much traffic in one bottle-neck.
- Bourne - Traffic Congestion - To bring Route 3 down into one lane, with miles of back-up common, is very similar to the previous rotary situation that the millions of dollars that were spent to fix.
- Bourne - Traffic Congestion - This on-ramp to Route 6 should be closed at least Friday through Sunday so that outbound Cape traffic can move and get over the bridge.
- Bourne - Traffic Congestion - Sagamore Bridge and Sagamore Beach

- Bourne - Traffic Congestion - I commute to Plymouth from Yarmouth 5 days a week. I find it very stressful when traffic is reduced to one lane going over the bridge because I never know how much longer my commute will be.
- Bourne - Traffic Congestion
- Bourne - Traffic Congestion - and safety
- Mashpee - Traffic Safety - the Mashpee rotary needs to be redesigned. Its a total mess in the summer.
- Bourne - Traffic Safety - Bourne Rotary. It is very hard/dangerous to get onto the rotary from the side and also from the gas station.
- Bourne - Traffic Safety - Add median
- Bourne - Traffic Safety - Replace Otis Rotary
- Bourne - Traffic Safety - Replace Bourne Rotary
- Bourne - Traffic Safety - merge traffic to 2 lanes before on Cape underpass to reduce traffic accidents / near misses at Bourne Bridge on ramp from Buzzards Bay
- Bourne - Traffic Safety - Replace Otis rotary with interchange to reduce accident rate at this location
- Bourne - Traffic Safety - Construct bike lanes / wider paved shoulders along entire length of County Rd in Bourne starting at 5 corners and ending at 28A so Bicyclists / Runners / Pedestrians are not in travel lanes
- Bourne - Traffic Safety - Replace Bridge built in 1929 over Railroad tracks with a new wider bridge to allow safer passage of Bicyclist's / Pedestrians
- Bourne - Traffic Safety - Railroad warning lights / bells needed at Bell road RR crossing as vehicles race to cross with train in sight / near miss incidents until someone gets hit
- Bourne - Traffic Safety - Briarwood timber Bridge is deteriorated and is a safety hazard to public safety vehicles and to the Train when passing underneath
- Bourne - Traffic Safety - rotaries that have multiple entrances and exits or rotaries that can be entered at higher speeds
- Bourne - Traffic Safety - Rotaries that can be entered at high speeds, Otis Rotary has been improved but i still have concern that the normal conventional entering and exit procedures are often ignored because of the ease in which motorists can enter the rotary on Route 28
- Bourne - Traffic Safety - Scenic Highway is a death trap even on the dryest sunniest of days.
- Bourne - Traffic Safety - Scenic Highway is deadly without the dividing barrier. Finding 4-lane undivided highways in Massachusetts, with a speed of 50mph, is hard to do. Even Cranberry highway Rt6/28 in Wareham, posted at 35mph, is going to get the dividing barrier.
- Bourne - Traffic Safety - The Rt 25 off-ramp is long and straight. Traffic does not slow down and merge with the off-ramp bridge traffic like they are supposed to. The jersey barriers prevent line of sight between the ramps and many accidents occur here.
- Bourne - Traffic Safety

- Brewster - Bicycle/ Pedestrian - Need to extend sidewalk on Route 6A into Orleans
- Brewster - Bicycle/ Pedestrian - Forcing or encouraging bikes and pedestrians into already congested or high-speed corridors seems like a recipe for disaster.
- Brewster - Bicycle/ Pedestrian - No sidewalks
- Brewster - Bicycle/ Pedestrian - Major safety issues Route 28 Orleans - Chatham; Route 6A Orleans - Dennis
- Brewster - Other - no publicly available electric car charging stations outside of hyannis and ptown. need fast charge as well.
- Brewster - Traffic Congestion - Exit 9 to Exit 12. Congested in winter. Avoided in summer. Needs acceleration lanes and divided highway.
- Brewster - Traffic Congestion - Make Rte 6 two lanes each way / single lane each way constricts traffic flow & safety
- Brewster - Traffic Safety - Improve safety on two lane Route 6 section (possible expansion)
- Brewster - Traffic Safety - Every year that intersection has at least 1 or 2 or more accidents. Visibility needs to be improved. 6A should have a designated lane to turn on and from Millstone. It would significantly improve the traffic back ups on 6A too .
- Chatham - Bicycle/ Pedestrian - Need flashing crosswalk lights for rail trail here. Traffic does not slow down
- Dennis - Bicycle/ Pedestrian - Missing crosswalks along Route 28 - Yarmouth, Dennis, Harwich
- Dennis - Bicycle/ Pedestrian - Missing sidewalks Route 6A
- Dennis - Bicycle/ Pedestrian - no bike path here to cross Rte 6 safely
- Dennis - Public Transportation - Dennis-Yarmouth Crosstown bus linking Dennis Village, East Dennis, Patriot Sq, Dennisport, West Dennis, Youth Yarmouth and Yarmouthport
- Dennis - Traffic Safety - construct tunnel under Great Western road for Cape Cod Rail Trail bicycling safety / Dangerous crossing for Bicyclists
- Dennis - Traffic Safety - Constuct crossing traffic lights for Cape Cod rail trail bicyclist's for safe crossing of Great Western Rd location
- Dennis - Traffic Safety - Illumination needed at metal barrier-Exit 9 on ramp east
- Dennis - Traffic Safety - Illumination needed at metal barrier-Exit 9 on ramp east
- Eastham - Bicycle/ Pedestrian - Missing sidewalk/poor quality
- Eastham - Bicycle/ Pedestrian - Install multi-use bike path on Route 6
- Eastham - Bicycle/ Pedestrian - Route 6 eastham is extremely dangerous for pedestrians - no sidewalk east side, and extremely difficult to cross 4 lanes of traffic. It's especially bad in summer time, with visitors and workers trying to get to businesses , many walking in the highway.
- Eastham - Bicycle/ Pedestrian - Need safe access to town center from bike trail
- Eastham - Bicycle/ Pedestrian - Safe access to commerce centers

- Eastham - Bicycle/ Pedestrian - Safe access to comerce centers
- Eastham - Bicycle/ Pedestrian
- Eastham - Public Transportation - Fix/improve barriers for people with disabilities
- Eastham - Traffic Safety - need for opticom at Route 6 signals on outer cape
- Eastham - Traffic Safety - Need for new signal
- Eastham - Traffic Safety - Route 6 road diet/safety improvements
- Eastham - Traffic Safety - Difficult intersection
- Eastham - Traffic Safety - Route 6 from Dennis to Provincetown. Also concern congestion
- Eastham - Traffic Safety
- Eastham - Traffic Safety - Route 6 Eastham Bracket Road area -Town Hall/Samoset Road is hazardous, esp in summer
- Falmouth - Bicycle/ Pedestrian - Missing bike/pedestrian accomodations
- Falmouth - Bicycle/ Pedestrian - Extend multi-modal path on Route 151 in Falmouth
- Falmouth - Bicycle/ Pedestrian - Shining Sea bikeway extension
- Falmouth - Bicycle/ Pedestrian - Sidewalk missing, narrow roadway with heavy truck usage
- Falmouth - Bicycle/ Pedestrian - Maintenance of existing paths
- Falmouth - Bicycle/ Pedestrian - sidewalks/bike path need to be extended to the Falmouth line to accomodate the kids in at least three neighborhoods
- Falmouth - Bicycle/ Pedestrian - Trunk river wooden bridge for shining sea bike path is in poor condition for pedestrians / cyclists to cross / needs replacement
- Falmouth - Bicycle/ Pedestrian - Shining sea bike path crossing on Ter Heun drive / Remove path gates that users go around and install crosswalk with signals for safer crossing
- Falmouth - Public Transportation - construct Rail platform for Seasonal / commuter / scenic tourist train stop
- Falmouth - Public Transportation - Locate Rail platform at this location in North Falmouth for seasonal / scenic / future commuter passenger rail service to develop alternate transportation to and from Cape Cod
- Falmouth - Public Transportation
- Falmouth - Public Transportation - Bring Passenger Rail service back to Falmouth Station on Depot ave which is ideally located right next to the Steamship parking lot and downtown Falmouth
- Falmouth - Public Transportation - rail service to North Falmouth with connecting shuttle bus service to the ferry docks
- Falmouth - Traffic Congestion - Create new connector road from Route 151 to Route 130
- Falmouth - Traffic Congestion - With talk of potentailly adding a marijuana dispensary here, we are in big trouble
- Falmouth - Traffic Congestion

- Falmouth - Traffic Safety - Crash history/Difficulty exiting side streets
- Falmouth - Traffic Safety - People never realize this is a rotary and they either stop in the middle of it, or don't yield appropraitely to people already on the rotary.
- Falmouth - Traffic Safety - too fast and congested=tons of accidents monthly
- Falmouth - Traffic Safety - Route 151 between North Falmouth and Mashpee has numerous traffic incidents. There are no safe biking lanes, or walking paths. 151 has a lot of crashes. Usually after dark, probably with consumption influences. Need better lighting.
- Falmouth - Traffic Safety - Need crossing signal installed at this location where shining sea bike path cross's Surf drive / Vehicle drivers line of sight restricted in this area to see cyclists /pedestrians
- Harwich - Bicycle/ Pedestrian - No sidewalks located along +/-1000 feet along Route 28 between Shaw's market and Dairy Queen. Only section without sidewalks from Harwich/Dennis line to HPort. Crossing at Doane Rd very dangerous, area supports year round ped/bike activity
- Harwich - Other - Flooding
- Harwich - Traffic Congestion - The most challenging spot on my morning commute. People don't know how to zipper merge and drive way too fast on the approach
- Harwich - Traffic Safety - This is a very odd configuration and regardless of the season there is always trouble at this intersection
- Harwich - Traffic Safety - This is a very difficult intersection
- Harwich - Traffic Safety - I have almost been rear-ended here because of congestion in front and speeders behind. One truck behind me went flying off the road into the trees to avoid hitting me, and got smashed up / towed out of the trees.
- Multi - Traffic Congestion - Route 6 from Dennis to Orleans Rotary including on and off ramps and the bridges during peak season both on and off the cape
- Orleans - Bicycle/ Pedestrian - no ped accomodations at rotary
- Orleans - Bicycle/ Pedestrian - no safe bike use south of orleans to chatham on 28
- Orleans - Bicycle/ Pedestrian - crossing signals needed at this location for Cape Cod Rail trail crossing
- Orleans - Bicycle/ Pedestrian - Route 6A Orleans between Skaket Corner and the Brewster town line has no sidewalks and is extremely dangerous for anyone walking between shaws plaza and Bakers Pond residential neighborhood. People are forced to walk in the road.
- Orleans - Bicycle/ Pedestrian - Route 28 Orleans is extremely dangerous for bikes and pedestrians. No accommodations -
- Orleans - Bicycle/ Pedestrian - Dangerous traveling Route 28 Orleans to Chatham
- Orleans - Public Transportation - Regular public transportation access is needed at public housing in Orleans

- Orleans - Public Transportation - Regular public transportation is needed at public housing locations
- Orleans - Traffic Congestion - If you add boat bike and bus and rail. Traffic maybe reduced. All areas of cape cod need help.
- Orleans - Traffic Safety - Rotary exit right into heavily used left turn to access rotary
- Provincetown - Bicycle/ Pedestrian - Dangerous and outdated intersection needs fewer lanes, added sidewalks, bike detectors, bike lanes, and bike and ped crossings on all sides. This has been studied over and over but nothing has been done.
- Provincetown - Bicycle/ Pedestrian - Race Point Road needs bike lanes to connect to the bike paths in the park. This is so obvious yet it isn't even on the project list for the park.
- Provincetown - Public Transportation - Better ferry/rail service to Boston for cape residents
- Provincetown - Public Transportation - Provincetown needs a high-frequency (15 min or less headway) parking lot circulator bus/trolley to keep people from causing so much congestion just driving around looking for a parking space!
- Provincetown - Public Transportation - extend ptown ferry service frequency beyond peak season.
- Sandwich - Bicycle/ Pedestrian - Rail trail extension through Sandwich to Canal Path
- Sandwich - Other - Dynamic speed limit sign/traffic management signage
- Sandwich - Other - Locate Regional Road Salt Supply for Upper Cape with delivery to site by Rail to reduce truck traffic on Canal Bridges and Highways
- Sandwich - Traffic Congestion - Route 6 eastbound could use a third lane to Exit 2
- Sandwich - Traffic Congestion - Make use of Existing Rail siding for unloading of Lumber and other commodities to local Lumber yards and other businesses to reduce truck traffic on Canal Bridges and Highways
- Sandwich - Traffic Congestion - New land sales along Cotuit Road should not permit multiple lots individual access to this road. Driveways need to be combined to allow limited access. The congestion along the remainder of Cotuit Rd. has risen sharply with more individual driveways.
- Sandwich - Traffic Congestion - Cotuit Rd. should be widened here to accommodate a right hand by-pass lane driving south on Cotuit Rd. Left lane stops for left turn and stops all southbound traffic. Very minor improvement would prevent impatient drivers from going off road here.
- Sandwich - Traffic Safety - On Great Hill road there are 2 places where pedestrians cross the road to access beaches. One is near a blind corner. The speed limit is 30 but must traffic moves much faster. This is a danger, especially to kids. Cross walks are needed.
- Sandwich - Traffic Safety - High accident. No turning lanes

- Truro - Bicycle/ Pedestrian - INCREDIBLY DANGEROUS -- no sidewalks, no lights, no bike lanes -- THIS IS PART OF THE EAST COAST GREENWAY!! The nearest signalized crossing is over a mile away
- Truro - Bicycle/ Pedestrian - Popular bike route; difficult to cross.
- Truro - Bicycle/ Pedestrian - add protect bike accomodations along rt 6, truro and ptown. or find a trail off rt 6, but accommodate somehow.
- Truro - Other - There should be a giant park and ride lot at the old Air Force base in Truro with shuttle service to the Outer Cape towns to get cars off of Route 6!
- Truro - Public Transportation - Increased transit service to outer cape (i.e dial a ride missing)
- Truro - Public Transportation - The outer cape towns need express bus service to Orleans and Hyannis. It takes hours on the existing bus to do a trip that takes a half hour in a private car.
- Truro - Traffic Safety - road diet Route 6 Truro
- Truro - Traffic Safety - No signage for lane shift; speeding; lax enforcement.
- Wellfleet - Bicycle/ Pedestrian - Impossible to cross -- needs sidewalks, bike lanes, & bike signals
- Wellfleet - Bicycle/ Pedestrian - Safe pedestrian connection
- Wellfleet - Public Transportation - We need water taxi service between the bay-side towns, esp. Provincetown & Wellfleet!
- Wellfleet - Traffic Safety
- Wellfleet - Traffic Safety
- Wellfleet - Traffic Safety
- Wellfleet - Traffic Safety
- Wellfleet - Traffic Safety - welfleet at rt 6
- Yarmouth - Bicycle/ Pedestrian - Need spurs off rail trails to activity centers (i.e. Willow St multi-use path)
- Yarmouth - Bicycle/ Pedestrian - No sidewalks/Needs sidewalks
- Yarmouth - Bicycle/ Pedestrian - Route 28 in Yarmouth very dangerous for cyclists
- Yarmouth - Bicycle/ Pedestrian - Route 6A in Yarmouth west of Setucket Road is extremely dangerous for bicycles - theyre forced to ride in the road, sice shoulder is only about one foot.
- Yarmouth - Other - Expand Yarmouth SEMASS Transfer Station to include C&D disposal by Rail like the Upper Cape Cod Regional transfer station presently does to reduce truck traffic on Highways and Canal bridges
- Yarmouth - Public Transportation - New passenger rail platform/station near Route 6 so people from all over the Cape don't have to drive into Hyannis to meet the train.
- Yarmouth - Public Transportation - Add robust Rt. 6A transit service paralleling Rt. 28 service on the Sealine & H2), helping establish a reliable transit grid.

- Yarmouth - Traffic Congestion - Delay light needed! Unable to take a left from Rte28 on to North Main. Riverway Restaurant is on the left.
- Yarmouth - Traffic Safety
- Yarmouth - Traffic Safety

CAPE COD COMMISSION

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COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix P: Statewide Tables

JULY 15, 2019

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Technical Appendix P: Statewide Tables

ESTIMATED AVAILABLE FUNDS

In early 2015, the Massachusetts Department of Transportation (MassDOT) provided estimated available funds by region from Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) including the state matching funds. A summary of the funds for the Cape Cod region are presented in Chapter 5 along with a description of the funding programs. The funding tables for all regions are presented on the following pages.

RTP Highway Financials

	Base OA in today's dollars w/2.2% increase starting in 2025	August redistribution	Base OA + August Redistribution	GANs repayment	Funding less GANs repayments	Funding w/ non-federal match	Statewide Items	Funding available for MPOs	Berkshire	Boston	Cape Cod	Central Mass	Franklin	Martha's Vineyard	Merrimack Valley	Montachusett	Nantucket	Northern Middlesex	Old Colony	Pioneer Valley	Southeast Mass
								MARPA formula ►	*3.5596%*	*42.9671%*	*4.5851%*	*8.6901%*	*2.5397%*	*0.3100%*	*4.4296%*	*4.4596%*	*0.2200%*	*3.9096%*	*4.5595%*	*10.8099%*	*8.9601%*
2020	$ 626,330,019	$ 50,000,000	$ 676,330,019	$ 81,570,000	$ 594,760,019	$ 743,450,024	$ 504,945,083	$ 238,504,940	$ 8,489,822	$ 102,478,656	$ 10,935,690	$ 20,726,318	$ 6,057,310	$ 739,365	$ 10,564,815	$ 10,636,366	$ 524,711	$ 9,324,589	$ 10,874,633	$ 25,782,146	$ 21,370,281
2021	$ 641,988,270	$ 50,000,000	$ 691,988,270	$ 85,190,000	$ 606,798,270	$ 758,497,838	$ 515,165,433	$ 243,332,404	$ 8,661,660	$ 104,552,877	$ 11,157,034	$ 21,145,829	$ 6,179,913	$ 754,330	$ 10,778,652	$ 10,851,652	$ 535,331	$ 9,513,324	$ 11,094,741	$ 26,303,990	$ 21,802,827
2022	$ 658,744,163	$ 50,000,000	$ 708,744,163	$ 89,590,000	$ 619,154,163	$ 773,942,704	$ 525,655,458	$ 248,287,245	$ 8,838,033	$ 106,681,829	$ 11,384,218	$ 21,576,410	$ 6,305,751	$ 769,690	$ 10,998,132	$ 11,072,618	$ 546,232	$ 9,707,038	$ 11,320,657	$ 26,839,603	$ 22,246,785
2023	$ 676,662,005	$ 50,000,000	$ 726,662,005	$ 93,985,000	$ 632,677,005	$ 790,846,256	$ 537,136,211	$ 253,710,045	$ 9,031,063	$ 109,011,849	$ 11,632,859	$ 22,047,657	$ 6,443,474	$ 786,501	$ 11,238,340	$ 11,314,453	$ 558,162	$ 9,919,048	$ 11,567,910	$ 27,425,802	$ 22,732,674
2024	$ 689,684,333	$ 50,000,000	$ 739,684,333	$ 98,715,000	$ 640,969,333	$ 801,211,666	$ 544,176,311	$ 257,035,355	$ 9,149,430	$ 110,440,638	$ 11,785,328	$ 22,336,629	$ 6,527,927	$ 796,810	$ 11,385,638	$ 11,462,749	$ 565,478	$ 10,049,054	$ 11,719,527	$ 27,785,265	$ 23,030,625
								1st five years ►	$ 44,170,008	$ 533,165,850	$ 56,895,130	$ 107,832,843	$ 31,514,375	$ 3,846,697	$ 54,965,577	$ 55,337,838	$ 2,729,914	$ 48,513,053	$ 56,577,467	$ 134,136,805	$ 111,183,192
2025	$ 704,857,388	$ 50,000,000	$ 754,857,388	$ 103,650,000	$ 651,207,388	$ 814,009,235	$ 552,868,314	$ 261,140,921	$ 9,295,572	$ 112,204,681	$ 11,973,572	$ 22,693,407	$ 6,632,196	$ 809,537	$ 11,567,498	$ 11,645,841	$ 574,510	$ 10,209,565	$ 11,906,720	$ 28,229,072	$ 23,398,488
2026	$ 720,364,251	$ 50,000,000	$ 770,364,251	$ 108,835,000	$ 661,529,251	$ 826,911,564	$ 561,631,468	$ 265,280,095	$ 9,442,910	$ 113,983,164	$ 12,163,358	$ 23,053,106	$ 6,737,319	$ 822,368	$ 11,750,847	$ 11,830,431	$ 583,616	$ 10,371,391	$ 12,095,446	$ 28,676,513	$ 23,769,362
2027	$ 736,212,264	$ 50,000,000	$ 786,212,264	$ 86,302,372	$ 699,909,893	$ 874,887,366	$ 594,216,235	$ 280,671,131	$ 9,990,770	$ 120,596,246	$ 12,869,052	$ 24,390,602	$ 7,128,205	$ 870,081	$ 12,432,608	$ 12,516,810	$ 617,476	$ 10,973,119	$ 12,797,200	$ 30,340,269	$ 25,148,414
2028	$ 752,408,934	$ 50,000,000	$ 802,408,934	$ 86,302,372	$ 716,106,563	$ 895,133,203	$ 607,967,039	$ 287,166,164	$ 10,221,967	$ 123,386,973	$ 13,166,856	$ 24,955,027	$ 7,293,159	$ 890,215	$ 12,720,312	$ 12,806,462	$ 631,766	$ 11,227,048	$ 13,093,341	$ 31,042,375	$ 25,730,375
2029	$ 768,961,931	$ 50,000,000	$ 818,961,931	▲ GANs conclude	$ 818,961,931	$ 1,023,702,413	$ 695,290,179	$ 328,412,234	$ 11,690,162	$ 141,109,213	$ 15,058,029	$ 28,539,352	$ 8,340,686	$ 1,018,078	$ 14,547,348	$ 14,645,872	$ 722,507	$ 12,839,605	$ 14,973,956	$ 35,501,034	$ 29,426,065
								2nd five years ►	$ 50,641,381	$ 611,280,276	$ 65,230,867	$ 123,631,493	$ 36,131,564	$ 4,410,279	$ 63,018,615	$ 63,445,416	$ 3,129,875	$ 55,620,728	$ 64,866,664	$ 153,789,263	$ 127,472,704
2030	$ 785,879,093	$ 50,000,000	$ 835,879,093		$ 835,879,093	$ 1,044,848,867	$ 709,652,675	$ 335,196,192	$ 11,931,644	$ 144,024,083	$ 15,369,081	$ 29,128,884	$ 8,512,978	$ 1,039,108	$ 14,847,851	$ 14,948,409	$ 737,432	$ 13,104,830	$ 15,283,270	$ 36,234,373	$ 30,033,914
2031	$ 803,168,433	$ 50,000,000	$ 853,168,433		$ 853,168,433	$ 1,066,460,542	$ 724,331,145	$ 342,129,397	$ 12,178,438	$ 147,003,080	$ 15,686,975	$ 29,731,387	$ 8,689,060	$ 1,060,601	$ 15,154,964	$ 15,257,603	$ 752,685	$ 13,375,891	$ 15,599,390	$ 36,983,846	$ 30,655,136
2032	$ 820,838,139	$ 50,000,000	$ 870,838,139		$ 870,838,139	$ 1,088,547,674	$ 739,332,542	$ 349,215,132	$ 12,430,662	$ 150,047,615	$ 16,011,863	$ 30,347,144	$ 8,869,017	$ 1,082,567	$ 15,468,833	$ 15,573,598	$ 768,273	$ 13,652,915	$ 15,922,464	$ 37,749,807	$ 31,290,025
2033	$ 838,896,578	$ 50,000,000	$ 888,896,578		$ 888,896,578	$ 1,111,120,722	$ 754,663,969	$ 356,456,753	$ 12,688,435	$ 153,159,130	$ 16,343,899	$ 30,976,448	$ 9,052,932	$ 1,105,016	$ 15,789,608	$ 15,896,545	$ 784,205	$ 13,936,033	$ 16,252,646	$ 38,532,619	$ 31,938,882
2034	$ 857,352,303	$ 50,000,000	$ 907,352,303		$ 907,352,303	$ 1,134,190,378	$ 770,332,688	$ 363,857,691	$ 12,951,878	$ 156,339,098	$ 16,683,239	$ 31,619,597	$ 9,240,894	$ 1,127,959	$ 16,117,440	$ 16,226,598	$ 800,487	$ 14,225,380	$ 16,590,091	$ 39,332,652	$ 32,602,013
								3rd five years ►	$ 62,181,056	$ 750,573,005	$ 80,095,056	$ 151,803,461	$ 44,364,881	$ 5,415,251	$ 77,378,696	$ 77,902,753	$ 3,843,081	$ 68,295,049	$ 79,647,861	$ 188,833,296	$ 156,519,970
2035	$ 876,214,053	$ 50,000,000	$ 926,214,053		$ 926,214,053	$ 1,157,767,567	$ 786,346,118	$ 371,421,448	$ 13,221,118	$ 159,589,025	$ 17,030,045	$ 32,276,895	$ 9,432,991	$ 1,151,406	$ 16,452,484	$ 16,563,911	$ 817,127	$ 14,521,093	$ 16,934,961	$ 40,150,287	$ 33,279,733
2036	$ 895,490,762	$ 50,000,000	$ 945,490,762		$ 945,490,762	$ 1,181,863,453	$ 802,711,844	$ 379,151,609	$ 13,496,281	$ 162,910,451	$ 17,384,480	$ 32,948,654	$ 9,629,313	$ 1,175,370	$ 16,794,900	$ 16,908,645	$ 834,134	$ 14,823,311	$ 17,287,418	$ 40,985,910	$ 33,972,363
2037	$ 915,191,559	$ 50,000,000	$ 965,191,559		$ 965,191,559	$ 1,206,489,449	$ 819,437,616	$ 387,051,833	$ 13,777,497	$ 166,304,948	$ 17,746,714	$ 33,635,191	$ 9,829,955	$ 1,199,861	$ 17,144,848	$ 17,260,964	$ 851,514	$ 15,132,178	$ 17,647,628	$ 41,839,916	$ 34,680,231
2038	$ 935,325,773	$ 50,000,000	$ 985,325,773		$ 985,325,773	$ 1,231,657,217	$ 836,531,355	$ 395,125,862	$ 14,064,900	$ 169,774,124	$ 18,116,916	$ 34,336,833	$ 10,035,012	$ 1,224,890	$ 17,502,495	$ 17,621,033	$ 869,277	$ 15,447,841	$ 18,015,764	$ 42,712,711	$ 35,403,672
2039	$ 955,902,941	$ 50,000,000	$ 1,005,902,941		$ 1,005,902,941	$ 1,257,378,676	$ 854,001,156	$ 403,377,519	$ 14,358,626	$ 173,319,622	$ 18,495,263	$ 35,053,910	$ 10,244,579	$ 1,250,470	$ 17,868,011	$ 17,989,024	$ 887,431	$ 15,770,447	$ 18,391,998	$ 43,604,706	$ 36,143,029
								4th five years ►	**$ 68,918,422**	**$ 831,898,170**	**$ 88,773,417**	**$ 168,251,483**	**$ 49,171,850**	**$ 6,001,998**	**$ 85,762,738**	**$ 86,343,576**	**$ 4,259,482**	**$ 75,694,871**	**$ 88,277,768**	**$ 209,293,530**	**$ 173,479,029**
2040	$ 976,932,805	$ 50,000,000	$ 1,026,932,805		$ 1,026,932,805	$ 1,283,666,006	$ 871,855,293	$ 411,810,713	$ 14,658,814	$ 176,943,121	$ 18,881,933	$ 35,786,763	$ 10,458,757	$ 1,276,613	$ 18,241,567	$ 18,365,111	$ 905,984	$ 16,100,152	$ 18,776,509	$ 44,516,326	$ 36,898,652
								5th five years ►	$ 14,658,814	$ 176,943,121	$ 18,881,933	$ 35,786,763	$ 10,458,757	$ 1,276,613	$ 18,241,567	$ 18,365,111	$ 905,984	$ 16,100,152	$ 18,776,509	$ 44,516,326	$ 36,898,652
							$ 21,066,582,819	*Total* ►	**$ 240,569,681**	**$ 2,903,860,422**	**$ 309,876,404**	**$ 587,306,042**	**$ 171,641,426**	**$ 20,950,838**	**$ 299,367,193**	**$ 301,394,694**	**$ 14,868,336**	**$ 264,223,853**	**$ 308,146,270**	**$ 730,569,221**	**$ 605,553,546**

Apply 2.2% growth rate (average of last 4 yrs. Of FAST Act) beginning in 2025

August Redistribution (assumed $50m) to 2040

Loaded federal amount

GANs repayment provided to 2026; split the remainder in 2027 & 2028

FA - GANS

FA + NFA (Total)

MARPA targets - Total

Approx. 1/3 of Total

MPO Targets by MARPA formula

RTP Highway Financials - Statewide Bridges

	Base OA in today's dollars w/2.2% increase starting in 2025	August redistribution	Base OA + August Redistribution	GANs repayment	Funding less GANs repayments	Funding w/ non-federal match	Funding available for MPOs	Statewide Programs	Statewide Bridges
									Bridges
2020	$ 626,330,019	$ 50,000,000	$ 676,330,019	$ 81,570,000	$ 594,760,019	$ 743,450,024	$ 238,504,940	$ 504,945,083	$ 197,709,931
2021	$ 641,988,270	$ 50,000,000	$ 691,988,270	$ 85,190,000	$ 606,798,270	$ 758,497,838	$ 243,332,404	$ 515,165,433	$ 179,809,931
2022	$ 658,744,163	$ 50,000,000	$ 708,744,163	$ 89,590,000	$ 619,154,163	$ 773,942,704	$ 248,287,245	$ 525,655,458	$ 197,709,931
2023	$ 676,662,005	$ 50,000,000	$ 726,662,005	$ 93,985,000	$ 632,677,005	$ 790,846,256	$ 253,710,045	$ 537,136,211	$ 207,515,202
2024	$ 689,684,333	$ 50,000,000	$ 739,684,333	$ 98,715,000	$ 640,969,333	$ 801,211,666	$ 257,035,355	$ 544,176,311	$ 202,492,700
							1st five years ►		
2025	$ 704,857,388	$ 50,000,000	$ 754,857,388	$ 103,650,000	$ 651,207,388	$ 814,009,235	$ 261,140,921	$ 552,868,314	$ 205,727,070
2026	$ 720,364,251	$ 50,000,000	$ 770,364,251	$ 108,835,000	$ 661,529,251	$ 826,911,564	$ 265,280,095	$ 561,631,468	$ 208,987,915
2027	$ 736,212,264	$ 50,000,000	$ 786,212,264	$ 86,302,372	$ 699,909,893	$ 874,887,366	$ 280,671,131	$ 594,216,235	$ 221,112,988
2028	$ 752,408,934	$ 50,000,000	$ 802,408,934	$ 86,302,372	$ 716,106,563	$ 895,133,203	$ 287,166,164	$ 607,967,039	$ 226,229,781
2029	$ 768,961,931	$ 50,000,000	$ 818,961,931	▲ GANs conclude	$ 818,961,931	$ 1,023,702,413	$ 328,412,234	$ 695,290,179	$ 258,723,475
							2nd five years ►		
2030	$ 785,879,093	$ 50,000,000	$ 835,879,093		$ 835,879,093	$ 1,044,848,867	$ 335,196,192	$ 709,652,675	$ 264,067,883
2031	$ 803,168,433	$ 50,000,000	$ 853,168,433		$ 853,168,433	$ 1,066,460,542	$ 342,129,397	$ 724,331,145	$ 269,529,868
2032	$ 820,838,139	$ 50,000,000	$ 870,838,139		$ 870,838,139	$ 1,088,547,674	$ 349,215,132	$ 739,332,542	$ 275,112,018
2033	$ 838,896,578	$ 50,000,000	$ 888,896,578		$ 888,896,578	$ 1,111,120,722	$ 356,456,753	$ 754,663,969	$ 280,816,974
2034	$ 857,352,303	$ 50,000,000	$ 907,352,303		$ 907,352,303	$ 1,134,190,378	$ 363,857,691	$ 770,332,688	$ 286,647,439
							3rd five years ►		
2035	$ 876,214,053	$ 50,000,000	$ 926,214,053		$ 926,214,053	$ 1,157,767,567	$ 371,421,448	$ 786,346,118	$ 292,606,175
2036	$ 895,490,762	$ 50,000,000	$ 945,490,762		$ 945,490,762	$ 1,181,863,453	$ 379,151,609	$ 802,711,844	$ 298,696,003
2037	$ 915,191,559	$ 50,000,000	$ 965,191,559		$ 965,191,559	$ 1,206,489,449	$ 387,051,833	$ 819,437,616	$ 304,919,807
2038	$ 935,325,773	$ 50,000,000	$ 985,325,773		$ 985,325,773	$ 1,231,657,217	$ 395,125,862	$ 836,531,355	$ 311,280,535
2039	$ 955,902,941	$ 50,000,000	$ 1,005,902,941		$ 1,005,902,941	$ 1,257,378,676	$ 403,377,519	$ 854,001,156	$ 317,781,198
							4th five years ►		
2040	$ 976,932,805	$ 50,000,000	$ 1,026,932,805		$ 1,026,932,805	$ 1,283,666,006	$ 411,810,713	$ 871,855,293	$ 324,424,877
							5th five years ►		
								Total ►	*$ 5,331,901,700*

	Total	MARPA Targets	Total - MARPA targets	SW Program Total * 19-23 Average

RTP Highway Financials - Interstate Pavement

	Base OA in today's dollars w/2.2% increase starting in 2025	August redistribution	Base OA + August Redistribution	GANs	repayment	Funding less GANs repayments	Funding w/ non-federal match	Funding available for MPOs	Statewide Programs	Interstate Pavement	Berkshire	Boston	Cape Cod	Central Mass	Franklin	Martha's Vineyard	Merrimack Valley	Montachusett	Nantucket	Northern Middlesex	Old Colony	Pioneer Valley	Southeast Mass
										Lane Miles	*0.0000%*	*37.7160%*	*0.0000%*	*10.9488%*	*3.7808%*	*0.0000%*	*14.2058%*	*1.9892%*	*0.0000%*	*3.8868%*	*0.3095%*	*8.4544%*	*18.7088%*
2020	$ 626,330,019	$ 50,000,000	$ 676,330,019	$ 81,570,000		$ 594,760,019	$ 743,450,024	$ 238,504,940	$ 504,945,083	$ 41,761,850	$ -	$ 15,750,884	$ -	$ 4,572,410	$ 1,578,933	$ -	$ 5,932,599	$ 830,730	$ -	$ 1,623,179	$ 129,258	$ 3,530,725	$ 7,813,133
2021	$ 641,988,270	$ 50,000,000	$ 691,988,270	$ 85,190,000		$ 606,798,270	$ 758,497,838	$ 243,332,404	$ 515,165,433	$ 27,493,979	$ -	$ 10,369,619	$ -	$ 3,010,253	$ 1,039,493	$ -	$ 3,905,736	$ 546,912	$ -	$ 1,068,622	$ 85,097	$ 2,324,458	$ 5,143,788
2022	$ 658,744,163	$ 50,000,000	$ 708,744,163	$ 89,590,000		$ 619,154,163	$ 773,942,704	$ 248,287,245	$ 525,655,458	$ 25,455,028	$ -	$ 9,600,609	$ -	$ 2,787,013	$ 962,404	$ -	$ 3,616,087	$ 506,353	$ -	$ 989,373	$ 78,786	$ 2,152,077	$ 4,762,326
2023	$ 676,662,005	$ 50,000,000	$ 726,662,005	$ 93,985,000		$ 632,677,005	$ 790,846,256	$ 253,710,045	$ 537,136,211	$ 27,456,989	$ -	$ 10,355,668	$ -	$ 3,006,203	$ 1,038,094	$ -	$ 3,900,481	$ 546,176	$ -	$ 1,067,185	$ 84,983	$ 2,321,331	$ 5,136,868
2024	$ 689,684,333	$ 50,000,000	$ 739,684,333	$ 98,715,000		$ 640,969,333	$ 801,211,666	$ 257,035,355	$ 544,176,311	$ 36,109,081	$ -	$ 13,618,888	$ -	$ 3,953,501	$ 1,365,213	$ -	$ 5,129,579	$ 718,284	$ -	$ 1,403,470	$ 111,762	$ 3,052,816	$ 6,755,569
								1st five years ►			$ -	$ 59,695,668	$ -	$ 17,329,380	$ 5,984,138	$ -	$ 22,484,481	$ 3,148,455	$ -	$ 6,151,829	$ 489,885	$ 13,381,406	$ 29,611,684
2025	$ 704,857,388	$ 50,000,000	$ 754,857,388	$ 103,650,000		$ 651,207,388	$ 814,009,235	$ 261,140,921	$ 552,868,314	$ 36,685,843	$ -	$ 13,836,419	$ -	$ 4,016,649	$ 1,387,019	$ -	$ 5,211,512	$ 729,757	$ -	$ 1,425,887	$ 113,547	$ 3,101,578	$ 6,863,474
2026	$ 720,364,251	$ 50,000,000	$ 770,364,251	$ 108,835,000		$ 661,529,251	$ 826,911,564	$ 265,280,095	$ 561,631,468	$ 37,267,327	$ -	$ 14,055,731	$ -	$ 4,080,315	$ 1,409,004	$ -	$ 5,294,116	$ 741,324	$ -	$ 1,448,488	$ 115,347	$ 3,150,739	$ 6,972,263
2027	$ 736,212,264	$ 50,000,000	$ 786,212,264	$ 86,302,372		$ 699,909,893	$ 874,887,366	$ 280,671,131	$ 594,216,235	$ 39,429,505	$ -	$ 14,871,218	$ -	$ 4,317,047	$ 1,490,752	$ -	$ 5,601,271	$ 784,334	$ -	$ 1,532,526	$ 122,039	$ 3,333,538	$ 7,376,780
2028	$ 752,408,934	$ 50,000,000	$ 802,408,934	$ 86,302,372		$ 716,106,563	$ 895,133,203	$ 287,166,164	$ 607,967,039	$ 40,341,946	$ -	$ 15,215,354	$ -	$ 4,416,948	$ 1,525,249	$ -	$ 5,730,890	$ 802,485	$ -	$ 1,567,991	$ 124,863	$ 3,410,680	$ 7,547,486
2029	$ 768,961,931	$ 50,000,000	$ 818,961,931	▲ GANs conclude		$ 818,961,931	$ 1,023,702,413	$ 328,412,234	$ 695,290,179	$ 46,136,315	$ -	$ 17,400,756	$ -	$ 5,051,360	$ 1,744,323	$ -	$ 6,554,026	$ 917,747	$ -	$ 1,793,203	$ 142,797	$ 3,900,561	$ 8,631,542
								2nd five years ►			$ -	$ 75,379,478	$ -	$ 21,882,318	$ 7,556,347	$ -	$ 28,391,816	$ 3,975,647	$ -	$ 7,768,096	$ 618,593	$ 16,897,096	$ 37,391,545
2030	$ 785,879,093	$ 50,000,000	$ 835,879,093			$ 835,879,093	$ 1,044,848,867	$ 335,196,192	$ 709,652,675	$ 47,089,345	$ -	$ 17,760,200	$ -	$ 5,155,705	$ 1,780,355	$ -	$ 6,689,411	$ 936,704	$ -	$ 1,830,245	$ 145,747	$ 3,981,134	$ 8,809,843
2031	$ 803,168,433	$ 50,000,000	$ 853,168,433			$ 853,168,433	$ 1,066,460,542	$ 342,129,397	$ 724,331,145	$ 48,063,342	$ -	$ 18,127,553	$ -	$ 5,262,346	$ 1,817,180	$ -	$ 6,827,775	$ 956,079	$ -	$ 1,868,102	$ 148,762	$ 4,063,480	$ 8,992,066
2032	$ 820,838,139	$ 50,000,000	$ 870,838,139			$ 870,838,139	$ 1,088,547,674	$ 349,215,132	$ 739,332,542	$ 49,058,767	$ -	$ 18,502,987	$ -	$ 5,371,332	$ 1,854,815	$ -	$ 6,969,183	$ 975,880	$ -	$ 1,906,792	$ 151,843	$ 4,147,637	$ 9,178,297
2033	$ 838,896,578	$ 50,000,000	$ 888,896,578			$ 888,896,578	$ 1,111,120,722	$ 356,456,753	$ 754,663,969	$ 50,076,091	$ -	$ 18,886,680	$ -	$ 5,482,717	$ 1,893,278	$ -	$ 7,113,702	$ 996,117	$ -	$ 1,946,333	$ 154,991	$ 4,233,646	$ 9,368,626
2034	$ 857,352,303	$ 50,000,000	$ 907,352,303			$ 907,352,303	$ 1,134,190,378	$ 363,857,691	$ 770,332,688	$ 51,115,797	$ -	$ 19,278,815	$ -	$ 5,596,552	$ 1,932,587	$ -	$ 7,261,400	$ 1,016,799	$ -	$ 1,986,743	$ 158,209	$ 4,321,547	$ 9,563,143
								3rd five years ►			$ -	$ 92,556,235	$ -	$ 26,868,652	$ 9,278,215	$ -	$ 34,861,472	$ 4,881,580	$ -	$ 9,538,216	$ 759,552	$ 20,747,445	$ 45,911,975
2035	$ 876,214,053	$ 50,000,000	$ 926,214,053			$ 926,214,053	$ 1,157,767,567	$ 371,421,448	$ 786,346,118	$ 52,178,376	$ -	$ 19,679,577	$ -	$ 5,712,891	$ 1,972,761	$ -	$ 7,412,348	$ 1,037,936	$ -	$ 2,028,043	$ 161,498	$ 4,411,382	$ 9,761,938
2036	$ 895,490,762	$ 50,000,000	$ 945,490,762			$ 945,490,762	$ 1,181,863,453	$ 379,151,609	$ 802,711,844	$ 53,264,331	$ -	$ 20,089,156	$ -	$ 5,831,790	$ 2,013,819	$ -	$ 7,566,617	$ 1,059,538	$ -	$ 2,070,252	$ 164,859	$ 4,503,194	$ 9,965,107
2037	$ 915,191,559	$ 50,000,000	$ 965,191,559			$ 965,191,559	$ 1,206,489,449	$ 387,051,833	$ 819,437,616	$ 54,374,178	$ -	$ 20,507,745	$ -	$ 5,953,305	$ 2,055,780	$ -	$ 7,724,279	$ 1,081,615	$ -	$ 2,113,389	$ 168,294	$ 4,597,025	$ 10,172,746
2038	$ 935,325,773	$ 50,000,000	$ 985,325,773			$ 985,325,773	$ 1,231,657,217	$ 395,125,862	$ 836,531,355	$ 55,508,441	$ -	$ 20,935,543	$ -	$ 6,077,493	$ 2,098,664	$ -	$ 7,885,410	$ 1,104,178	$ -	$ 2,157,475	$ 171,805	$ 4,692,920	$ 10,384,953
2039	$ 955,902,941	$ 50,000,000	$ 1,005,902,941			$ 1,005,902,941	$ 1,257,378,676	$ 403,377,519	$ 854,001,156	$ 56,667,658	$ -	$ 21,372,753	$ -	$ 6,204,413	$ 2,142,492	$ -	$ 8,050,086	$ 1,127,237	$ -	$ 2,202,531	$ 175,393	$ 4,790,925	$ 10,601,828
								4th five years ►			**$ -**	**$ 102,584,775**	**$ -**	**$ 29,779,891**	**$ 10,283,517**	**$ -**	**$ 38,638,740**	**$ 5,410,503**	**$ -**	**$ 10,571,689**	**$ 841,850**	**$ 22,995,447**	**$ 50,886,573**
2040	$ 976,932,805	$ 50,000,000	$ 1,026,932,805			$ 1,026,932,805	$ 1,283,666,006	$ 411,810,713	$ 871,855,293	$ 57,852,378	$ -	$ 21,819,582	$ -	$ 6,334,125	$ 2,187,284	$ -	$ 8,218,385	$ 1,150,803	$ -	$ 2,248,578	$ 179,060	$ 4,891,087	$ 10,823,475
								5th five years ►			$ -	$ 21,819,582	$ -	$ 6,334,125	$ 2,187,284	$ -	$ 8,218,385	$ 1,150,803	$ -	$ 2,248,578	$ 179,060	$ 4,891,087	$ 10,823,475
									Total ►	*$ 933,386,566*	**$ -**	**$ 352,035,738**	**$ -**	**$ 102,194,366**	**$ 35,289,501**	**$ -**	**$ 132,594,893**	**$ 18,566,989**	**$ -**	**$ 36,278,407**	**$ 2,888,939**	**$ 78,912,480**	**$ 174,625,252**

	Total	MARPA Targets	Total - MARPA targets	SW Program Total * 19-23 Average

← % of Interstate lane miles by region →

RTP Highway Financials - Non-Interstate DOT Pavement

	Base OA in today's dollars w/2.2% increase starting in 2025	August redistribution	Base OA + August Redistribution	GANs	repayment	Funding less GANs repayments	Funding w/ non-federal match	Funding available for MPOs	Statewide Programs	Non-Interstate DOT Pavement	Berkshire	Boston	Cape Cod	Central Mass	Franklin	Martha's Vineyard	Merrimack Valley	Montachusett	Nantucket	Northern Middlesex	Old Colony	Pioneer Valley	Southeast Mass
										Lane Miles	*5.7079%*	*34.4095%*	*7.0091%*	*10.2588%*	*2.9843%*	*0.2594%*	*2.9985%*	*6.2274%*	*0.0000%*	*3.5471%*	*5.9599%*	*13.0542%*	*6.3713%*
2020	$ 626,330,019	$ 50,000,000	$ 676,330,019	$ 81,570,000		$ 594,760,019	$ 743,450,024	$ 238,504,940	$ 504,945,083	$ 81,482,081	$ 4,650,953	$ 28,037,583	$ 5,711,156	$ 8,359,119	$ 2,431,649	$ 211,328	$ 2,443,249	$ 5,074,220	$ -	$ 2,890,223	$ 4,856,278	$ 10,636,826	$ 5,191,433
2021	$ 641,988,270	$ 50,000,000	$ 691,988,270	$ 85,190,000		$ 606,798,270	$ 758,497,838	$ 243,332,404	$ 515,165,433	$ 67,545,000	$ 3,855,432	$ 23,241,902	$ 4,734,293	$ 6,929,336	$ 2,015,729	$ 175,182	$ 2,025,344	$ 4,206,302	$ -	$ 2,395,865	$ 4,025,638	$ 8,817,453	$ 4,303,465
2022	$ 658,744,163	$ 50,000,000	$ 708,744,163	$ 89,590,000		$ 619,154,163	$ 773,942,704	$ 248,287,245	$ 525,655,458	$ 63,930,000	$ 3,649,090	$ 21,997,998	$ 4,480,914	$ 6,558,479	$ 1,907,847	$ 165,806	$ 1,916,948	$ 3,981,181	$ -	$ 2,267,639	$ 3,810,186	$ 8,345,544	$ 4,073,145
2023	$ 676,662,005	$ 50,000,000	$ 726,662,005	$ 93,985,000		$ 632,677,005	$ 790,846,256	$ 253,710,045	$ 537,136,211	$ 70,518,403	$ 4,025,152	$ 24,265,035	$ 4,942,701	$ 7,234,373	$ 2,104,463	$ 182,893	$ 2,114,502	$ 4,391,467	$ -	$ 2,501,334	$ 4,202,850	$ 9,205,606	$ 4,492,909
2024	$ 689,684,333	$ 50,000,000	$ 739,684,333	$ 98,715,000		$ 640,969,333	$ 801,211,666	$ 257,035,355	$ 544,176,311	$ 77,670,767	$ 4,433,405	$ 26,726,128	$ 5,444,017	$ 7,968,123	$ 2,317,909	$ 201,443	$ 2,328,966	$ 4,836,874	$ -	$ 2,755,033	$ 4,629,127	$ 10,139,289	$ 4,948,604
								1st five years ►			$ 20,614,033	$ 124,268,645	$ 25,313,081	$ 37,049,429	$ 10,777,598	$ 936,653	$ 10,829,008	$ 22,490,044	$ -	$ 12,810,094	$ 21,524,079	$ 47,144,718	$ 23,009,555
2025	$ 704,857,388	$ 50,000,000	$ 754,857,388	$ 103,650,000		$ 651,207,388	$ 814,009,235	$ 261,140,921	$ 552,868,314	$ 78,911,384	$ 4,504,219	$ 27,153,018	$ 5,530,973	$ 8,095,395	$ 2,354,933	$ 204,661	$ 2,366,166	$ 4,914,132	$ -	$ 2,799,038	$ 4,703,066	$ 10,301,242	$ 5,027,647
2026	$ 720,364,251	$ 50,000,000	$ 770,364,251	$ 108,835,000		$ 661,529,251	$ 826,911,564	$ 265,280,095	$ 561,631,468	$ 80,162,157	$ 4,575,613	$ 27,583,403	$ 5,618,641	$ 8,223,710	$ 2,392,259	$ 207,905	$ 2,403,671	$ 4,992,023	$ -	$ 2,843,404	$ 4,777,612	$ 10,464,520	$ 5,107,337
2027	$ 736,212,264	$ 50,000,000	$ 786,212,264	$ 86,302,372		$ 699,909,893	$ 874,887,366	$ 280,671,131	$ 594,216,235	$ 84,813,009	$ 4,841,081	$ 29,183,738	$ 5,944,624	$ 8,700,834	$ 2,531,054	$ 219,967	$ 2,543,127	$ 5,281,651	$ -	$ 3,008,373	$ 5,054,799	$ 11,071,651	$ 5,403,655
2028	$ 752,408,934	$ 50,000,000	$ 802,408,934	$ 86,302,372		$ 716,106,563	$ 895,133,203	$ 287,166,164	$ 607,967,039	$ 86,775,674	$ 4,953,108	$ 29,859,082	$ 6,082,189	$ 8,902,181	$ 2,589,625	$ 225,058	$ 2,601,978	$ 5,403,874	$ -	$ 3,077,990	$ 5,171,773	$ 11,327,861	$ 5,528,701
2029	$ 768,961,931	$ 50,000,000	$ 818,961,931	▲ GANs conclude		$ 818,961,931	$ 1,023,702,413	$ 328,412,234	$ 695,290,179	$ 99,239,383	$ 5,664,530	$ 34,147,783	$ 6,955,782	$ 10,180,813	$ 2,961,576	$ 257,383	$ 2,975,703	$ 6,180,040	$ -	$ 3,520,086	$ 5,914,602	$ 12,954,898	$ 6,322,796
								2nd five years ►			$ 24,538,551	$ 147,927,024	$ 30,132,209	$ 44,102,934	$ 12,829,447	$ 1,114,974	$ 12,890,644	$ 26,771,720	$ -	$ 15,248,892	$ 25,621,853	$ 56,120,172	$ 27,390,136
2030	$ 785,879,093	$ 50,000,000	$ 835,879,093			$ 835,879,093	$ 1,044,848,867	$ 335,196,192	$ 709,652,675	$ 101,289,355	$ 5,781,542	$ 34,853,168	$ 7,099,466	$ 10,391,117	$ 3,022,753	$ 262,700	$ 3,037,172	$ 6,307,700	$ -	$ 3,592,800	$ 6,036,779	$ 13,222,505	$ 6,453,405
2031	$ 803,168,433	$ 50,000,000	$ 853,168,433			$ 853,168,433	$ 1,066,460,542	$ 342,129,397	$ 724,331,145	$ 103,384,426	$ 5,901,127	$ 35,574,071	$ 7,246,312	$ 10,606,047	$ 3,085,276	$ 268,133	$ 3,099,993	$ 6,438,168	$ -	$ 3,667,113	$ 6,161,644	$ 13,495,999	$ 6,586,887
2032	$ 820,838,139	$ 50,000,000	$ 870,838,139			$ 870,838,139	$ 1,088,547,674	$ 349,215,132	$ 739,332,542	$ 105,525,588	$ 6,023,343	$ 36,310,835	$ 7,396,388	$ 10,825,705	$ 3,149,174	$ 273,687	$ 3,164,196	$ 6,571,507	$ -	$ 3,743,062	$ 6,289,256	$ 13,775,511	$ 6,723,306
2033	$ 838,896,578	$ 50,000,000	$ 888,896,578			$ 888,896,578	$ 1,111,120,722	$ 356,456,753	$ 754,663,969	$ 107,713,857	$ 6,148,249	$ 37,063,807	$ 7,549,766	$ 11,050,196	$ 3,214,478	$ 279,362	$ 3,229,811	$ 6,707,779	$ -	$ 3,820,681	$ 6,419,675	$ 14,061,171	$ 6,862,726
2034	$ 857,352,303	$ 50,000,000	$ 907,352,303			$ 907,352,303	$ 1,134,190,378	$ 363,857,691	$ 770,332,688	$ 109,950,267	$ 6,275,902	$ 37,833,345	$ 7,706,518	$ 11,279,626	$ 3,281,218	$ 285,162	$ 3,296,870	$ 6,847,050	$ -	$ 3,900,008	$ 6,552,963	$ 14,353,117	$ 7,005,214
								3rd five years ►			$ 30,130,162	$ 181,635,226	$ 36,998,450	$ 54,152,690	$ 15,752,899	$ 1,369,043	$ 15,828,041	$ 32,872,204	$ -	$ 18,723,664	$ 31,460,316	$ 68,908,303	$ 33,631,539
2035	$ 876,214,053	$ 50,000,000	$ 926,214,053			$ 926,214,053	$ 1,157,767,567	$ 371,421,448	$ 786,346,118	$ 112,235,878	$ 6,406,363	$ 38,619,812	$ 7,866,719	$ 11,514,103	$ 3,349,427	$ 291,090	$ 3,365,404	$ 6,989,384	$ -	$ 3,981,080	$ 6,689,184	$ 14,651,485	$ 7,150,836
2036	$ 895,490,762	$ 50,000,000	$ 945,490,762			$ 945,490,762	$ 1,181,863,453	$ 379,151,609	$ 802,711,844	$ 114,571,772	$ 6,539,695	$ 39,423,582	$ 8,030,444	$ 11,753,739	$ 3,419,137	$ 297,148	$ 3,435,446	$ 7,134,850	$ -	$ 4,063,936	$ 6,828,402	$ 14,956,417	$ 7,299,662
2037	$ 915,191,559	$ 50,000,000	$ 965,191,559			$ 965,191,559	$ 1,206,489,449	$ 387,051,833	$ 819,437,616	$ 116,959,057	$ 6,675,960	$ 40,245,035	$ 8,197,771	$ 11,998,647	$ 3,490,380	$ 303,340	$ 3,507,029	$ 7,283,516	$ -	$ 4,148,614	$ 6,970,683	$ 15,268,057	$ 7,451,762
2038	$ 935,325,773	$ 50,000,000	$ 985,325,773			$ 985,325,773	$ 1,231,657,217	$ 395,125,862	$ 836,531,355	$ 119,398,861	$ 6,815,222	$ 41,084,560	$ 8,368,779	$ 12,248,942	$ 3,563,190	$ 309,668	$ 3,580,187	$ 7,435,452	$ -	$ 4,235,156	$ 7,116,093	$ 15,586,554	$ 7,607,208
2039	$ 955,902,941	$ 50,000,000	$ 1,005,902,941			$ 1,005,902,941	$ 1,257,378,676	$ 403,377,519	$ 854,001,156	$ 121,892,341	$ 6,957,549	$ 41,942,554	$ 8,543,549	$ 12,504,745	$ 3,637,603	$ 316,135	$ 3,654,954	$ 7,590,731	$ -	$ 4,323,601	$ 7,264,703	$ 15,912,058	$ 7,766,074
								4th five years ►			**$ 33,394,789**	**$ 201,315,543**	**$ 41,007,261**	**$ 60,020,176**	**$ 17,459,737**	**$ 1,517,380**	**$ 17,543,022**	**$ 36,433,933**	**$ -**	**$ 20,752,387**	**$ 34,869,066**	**$ 76,374,571**	**$ 37,275,542**
2040	$ 976,932,805	$ 50,000,000	$ 1,026,932,805			$ 1,026,932,805	$ 1,283,666,006	$ 411,810,713	$ 871,855,293	$ 124,440,678	$ 7,103,007	$ 42,819,424	$ 8,722,164	$ 12,766,175	$ 3,713,652	$ 322,744	$ 3,731,367	$ 7,749,427	$ -	$ 4,413,992	$ 7,416,582	$ 16,244,722	$ 7,928,435
								5th five years ►			$ 7,103,007	$ 42,819,424	$ 8,722,164	$ 12,766,175	$ 3,713,652	$ 322,744	$ 3,731,367	$ 7,749,427	$ -	$ 4,413,992	$ 7,416,582	$ 16,244,722	$ 7,928,435
									Total ►	*$ 2,028,409,937*	**$ 115,780,541**	**$ 697,965,862**	**$ 142,173,165**	**$ 208,091,403**	**$ 60,533,332**	**$ 5,260,795**	**$ 60,822,081**	**$ 126,317,328**	**$ -**	**$ 71,949,029**	**$ 120,891,896**	**$ 264,792,486**	**$ 129,235,207**

Total | **MARPA Targets** | **Total - MARPA targets** | **SW Program Total * 19-23 Average**

% of Non-Interstate (NHS) by region

RTP Highway Financials - Remaining Statewide Programs

	Base OA in today's dollars w/2.2% increase starting in 2025	August redistribution	Base OA + August Redistribution	GANs repayment	Funding less GANs repayments	Funding w/ non-federal match	Statewide Items	Remaining SW Programs	Berkshire	Boston	Cape Cod	Central Mass	Franklin	Martha's Vineyard	Merrimack Valley	Montachusett	Nantucket	Northern Middlesex	Old Colony	Pioneer Valley	Southeast Mass
								MARPA formula ►	3.5596%	42.9671%	4.5851%	8.6901%	2.5397%	0.3100%	4.4296%	4.4596%	0.2200%	3.9096%	4.5595%	10.8099%	8.9601%
2020	$ 626,330,019	$ 50,000,000	$ 676,330,019	$ 81,570,000	$ 594,760,019	$ 743,450,024	$ 504,945,083	$ 183,991,221	$ 6,549,352	$ 79,055,692	$ 8,436,181	$ 15,989,021	$ 4,672,825	$ 570,373	$ 8,150,075	$ 8,205,272	$ 404,781	$ 7,193,321	$ 8,389,080	$ 19,889,267	$ 16,485,797
2021	$ 641,988,270	$ 50,000,000	$ 691,988,270	$ 85,190,000	$ 606,798,270	$ 758,497,838	$ 515,165,433	$ 240,316,524	$ 8,554,307	$ 103,257,041	$ 11,018,753	$ 20,883,746	$ 6,103,319	$ 744,981	$ 10,645,061	$ 10,717,156	$ 528,696	$ 9,395,415	$ 10,957,232	$ 25,977,976	$ 21,532,601
2022	$ 658,744,163	$ 50,000,000	$ 708,744,163	$ 89,590,000	$ 619,154,163	$ 773,942,704	$ 525,655,458	$ 238,560,500	$ 8,491,800	$ 102,502,528	$ 10,938,237	$ 20,731,146	$ 6,058,721	$ 739,538	$ 10,567,276	$ 10,638,844	$ 524,833	$ 9,326,761	$ 10,877,166	$ 25,788,151	$ 21,375,259
2023	$ 676,662,005	$ 50,000,000	$ 726,662,005	$ 93,985,000	$ 632,677,005	$ 790,846,256	$ 537,136,211	$ 231,645,617	$ 8,245,657	$ 99,531,404	$ 10,621,183	$ 20,130,236	$ 5,883,104	$ 718,101	$ 10,260,974	$ 10,330,468	$ 509,620	$ 9,056,417	$ 10,561,882	$ 25,040,660	$ 20,755,679
2024	$ 689,684,333	$ 50,000,000	$ 739,684,333	$ 98,715,000	$ 640,969,333	$ 801,211,666	$ 544,176,311	$ 227,903,763	$ 8,112,462	$ 97,923,638	$ 10,449,615	$ 19,805,065	$ 5,788,072	$ 706,502	$ 10,095,225	$ 10,163,596	$ 501,388	$ 8,910,126	$ 10,391,272	$ 24,636,169	$ 20,420,405
									$ 39,953,578	$ 482,270,303	$ 51,463,970	$ 97,539,214	$ 28,506,040	$ 3,479,495	$ 49,718,611	$ 50,055,336	$ 2,469,319	$ 43,882,039	$ 51,176,632	$ 121,332,223	$ 100,569,742
2025	$ 704,857,388	$ 50,000,000	$ 754,857,388	$ 103,650,000	$ 651,207,388	$ 814,009,235	$ 552,868,314	$ 231,544,017	$ 8,242,041	$ 99,487,749	$ 10,616,525	$ 20,121,407	$ 5,880,523	$ 717,786	$ 10,256,474	$ 10,325,937	$ 509,397	$ 9,052,445	$ 10,557,249	$ 25,029,677	$ 20,746,575
2026	$ 720,364,251	$ 50,000,000	$ 770,364,251	$ 108,835,000	$ 661,529,251	$ 826,911,564	$ 561,631,468	$ 235,214,070	$ 8,372,680	$ 101,064,665	$ 10,784,800	$ 20,440,338	$ 5,973,732	$ 729,164	$ 10,419,042	$ 10,489,607	$ 517,471	$ 9,195,929	$ 10,724,586	$ 25,426,406	$ 21,075,416
2027	$ 736,212,264	$ 50,000,000	$ 786,212,264	$ 86,302,372	$ 699,909,893	$ 874,887,366	$ 594,216,235	$ 248,860,733	$ 8,858,447	$ 106,928,240	$ 11,410,513	$ 21,626,247	$ 6,320,316	$ 771,468	$ 11,023,535	$ 11,098,193	$ 547,494	$ 9,729,459	$ 11,346,805	$ 26,901,596	$ 22,298,171
2028	$ 752,408,934	$ 50,000,000	$ 802,408,934	$ 86,302,372	$ 716,106,563	$ 895,133,203	$ 607,967,039	$ 254,619,639	$ 9,063,441	$ 109,402,675	$ 11,674,565	$ 22,126,701	$ 6,466,575	$ 789,321	$ 11,278,632	$ 11,355,017	$ 560,163	$ 9,954,609	$ 11,609,382	$ 27,524,128	$ 22,814,174
2029	$ 768,961,931	$ 50,000,000	$ 818,961,931	▲ GANs conclude	$ 818,961,931	$ 1,023,702,413	$ 695,290,179	$ 291,191,007	$ 10,365,235	$ 125,116,331	$ 13,351,399	$ 25,304,790	$ 7,395,378	$ 902,692	$ 12,898,597	$ 12,985,954	$ 640,620	$ 11,384,404	$ 13,276,854	$ 31,477,457	$ 26,091,005
									$ 44,901,843	$ 541,999,660	$ 57,837,802	$ 109,619,482	$ 32,036,524	$ 3,910,431	$ 55,876,280	$ 56,254,708	$ 2,775,145	$ 49,316,846	$ 57,514,877	$ 136,359,264	$ 113,025,342
2030	$ 785,879,093	$ 50,000,000	$ 835,879,093		$ 835,879,093	$ 1,044,848,867	$ 709,652,675	$ 297,206,092	$ 10,579,348	$ 127,700,839	$ 13,627,197	$ 25,827,507	$ 7,548,143	$ 921,339	$ 13,165,041	$ 13,254,203	$ 653,853	$ 11,619,569	$ 13,551,112	$ 32,127,681	$ 26,629,963
2031	$ 803,168,433	$ 50,000,000	$ 853,168,433		$ 853,168,433	$ 1,066,460,542	$ 724,331,145	$ 303,353,509	$ 10,798,171	$ 130,342,205	$ 13,909,062	$ 26,361,723	$ 7,704,269	$ 940,396	$ 13,437,347	$ 13,528,353	$ 667,378	$ 11,859,909	$ 13,831,403	$ 32,792,211	$ 27,180,778
2032	$ 820,838,139	$ 50,000,000	$ 870,838,139		$ 870,838,139	$ 1,088,547,674	$ 739,332,542	$ 309,636,169	$ 11,021,809	$ 133,041,682	$ 14,197,128	$ 26,907,693	$ 7,863,830	$ 959,872	$ 13,715,644	$ 13,808,535	$ 681,200	$ 12,105,536	$ 14,117,861	$ 33,471,360	$ 27,743,710
2033	$ 838,896,578	$ 50,000,000	$ 888,896,578		$ 888,896,578	$ 1,111,120,722	$ 754,663,969	$ 316,057,047	$ 11,250,367	$ 135,800,548	$ 14,491,532	$ 27,465,673	$ 8,026,901	$ 979,777	$ 14,000,063	$ 14,094,880	$ 695,326	$ 12,356,566	$ 14,410,621	$ 34,165,451	$ 28,319,027
2034	$ 857,352,303	$ 50,000,000	$ 907,352,303		$ 907,352,303	$ 1,134,190,378	$ 770,332,688	$ 322,619,185	$ 11,483,953	$ 138,620,108	$ 14,792,412	$ 28,035,930	$ 8,193,559	$ 1,000,119	$ 14,290,739	$ 14,387,525	$ 709,762	$ 12,613,120	$ 14,709,822	$ 34,874,811	$ 28,907,002
									$ 55,133,648	$ 665,505,382	$ 71,017,330	$ 134,598,526	$ 39,336,702	$ 4,801,503	$ 68,608,834	$ 69,073,496	$ 3,407,518	$ 60,554,700	$ 70,620,819	$ 167,431,515	$ 138,780,480
2035	$ 876,214,053	$ 50,000,000	$ 926,214,053		$ 926,214,053	$ 1,157,767,567	$ 786,346,118	$ 329,325,690	$ 11,722,677	$ 141,501,699	$ 15,099,912	$ 28,618,732	$ 8,363,885	$ 1,020,910	$ 14,587,811	$ 14,686,608	$ 724,517	$ 12,875,317	$ 15,015,605	$ 35,599,778	$ 29,507,911
2036	$ 895,490,762	$ 50,000,000	$ 945,490,762		$ 945,490,762	$ 1,181,863,453	$ 802,711,844	$ 336,179,738	$ 11,966,654	$ 144,446,684	$ 15,414,177	$ 29,214,355	$ 8,537,957	$ 1,042,157	$ 14,891,418	$ 14,992,272	$ 739,595	$ 13,143,283	$ 15,328,115	$ 36,340,693	$ 30,122,041
2037	$ 915,191,559	$ 50,000,000	$ 965,191,559		$ 965,191,559	$ 1,206,489,449	$ 819,437,616	$ 343,184,575	$ 12,215,998	$ 147,456,460	$ 15,735,356	$ 29,823,083	$ 8,715,859	$ 1,063,872	$ 15,201,704	$ 15,304,659	$ 755,006	$ 13,417,144	$ 15,647,501	$ 37,097,909	$ 30,749,681
2038	$ 935,325,773	$ 50,000,000	$ 985,325,773		$ 985,325,773	$ 1,231,657,217	$ 836,531,355	$ 350,343,518	$ 12,470,828	$ 150,532,450	$ 16,063,601	$ 30,445,202	$ 8,897,674	$ 1,086,065	$ 15,518,816	$ 15,623,920	$ 770,756	$ 13,697,030	$ 15,973,913	$ 37,871,784	$ 31,391,130
2039	$ 955,902,941	$ 50,000,000	$ 1,005,902,941		$ 1,005,902,941	$ 1,257,378,676	$ 854,001,156	$ 357,659,959	$ 12,731,264	$ 153,676,112	$ 16,399,067	$ 31,081,008	$ 9,083,490	$ 1,108,746	$ 15,842,906	$ 15,950,204	$ 786,852	$ 13,983,074	$ 16,307,506	$ 38,662,684	$ 32,046,690
									$ 61,107,421	$ 737,613,404	$ 78,712,113	$ 149,182,380	$ 43,598,864	$ 5,321,750	$ 76,042,654	$ 76,557,662	$ 3,776,726	$ 67,115,848	$ 78,272,639	$ 185,572,848	$ 153,817,452
2040	$ 976,932,805	$ 50,000,000	$ 1,026,932,805		$ 1,026,932,805	$ 1,283,666,006	$ 871,855,293	$ 365,137,360	$ 12,997,429	$ 156,888,935	$ 16,741,913	$ 31,730,802	$ 9,273,394	$ 1,131,926	$ 16,174,125	$ 16,283,666	$ 803,302	$ 14,275,410	$ 16,648,438	$ 39,470,984	$ 32,716,673
								5th five years ►	$ 12,997,429	$ 156,888,935	$ 16,741,913	$ 31,730,802	$ 9,273,394	$ 1,131,926	$ 16,174,125	$ 16,283,666	$ 803,302	$ 14,275,410	$ 16,648,438	$ 39,470,984	$ 32,716,673
							$ 20,322,798,067	Total ►	$ 214,093,919	$ 2,584,277,684	$ 275,773,129	$ 522,670,404	$ 152,751,525	$ 18,645,105	$ 266,420,504	$ 268,224,869	$ 13,232,010	$ 235,144,844	$ 274,233,404	$ 650,166,833	$ 538,909,688

RTP Highway Financials - NFA Bridge Preservation

	NFA Bridge/Pavement Preservation	Berkshire	Boston	Cape Cod	Central Mass	Franklin	Martha's Vineyard	Merrimack Valley	Montachusett	Nantucket	Northern Middlesex	Old Colony	Pioneer Valley	Southeast Mass
	MARPA formula ►	*3.5596%*	*42.9671%*	*4.5851%*	*8.6901%*	*2.5397%*	*0.3100%*	*4.4296%*	*4.4596%*	*0.2200%*	*3.9096%*	*4.5595%*	*10.8099%*	*8.9601%*
2020	$ 100,000,000	$ 3,559,600	$ 42,967,100	$ 4,585,100	$ 8,690,100	$ 2,539,700	$ 310,000	$ 4,429,600	$ 4,459,600	$ 220,000	$ 3,909,600	$ 4,559,500	$ 10,809,900	$ 8,960,100
2021	$ 100,000,000	$ 3,559,600	$ 42,967,100	$ 4,585,100	$ 8,690,100	$ 2,539,700	$ 310,000	$ 4,429,600	$ 4,459,600	$ 220,000	$ 3,909,600	$ 4,559,500	$ 10,809,900	$ 8,960,100
2022	$ 100,000,000	$ 3,559,600	$ 42,967,100	$ 4,585,100	$ 8,690,100	$ 2,539,700	$ 310,000	$ 4,429,600	$ 4,459,600	$ 220,000	$ 3,909,600	$ 4,559,500	$ 10,809,900	$ 8,960,100
2023	$ 100,000,000	$ 3,559,600	$ 42,967,100	$ 4,585,100	$ 8,690,100	$ 2,539,700	$ 310,000	$ 4,429,600	$ 4,459,600	$ 220,000	$ 3,909,600	$ 4,559,500	$ 10,809,900	$ 8,960,100
2024	$ 100,000,000	$ 3,559,600	$ 42,967,100	$ 4,585,100	$ 8,690,100	$ 2,539,700	$ 310,000	$ 4,429,600	$ 4,459,600	$ 220,000	$ 3,909,600	$ 4,559,500	$ 10,809,900	$ 8,960,100
	1st five years ►	$ 17,798,000	$ 214,835,500	$ 22,925,500	$ 43,450,500	$ 12,698,500	$ 1,550,000	$ 22,148,000	$ 22,298,000	$ 1,100,000	$ 19,548,000	$ 22,797,500	$ 54,049,500	$ 44,800,500
2025	$ 102,200,000	$ 3,637,911	$ 43,912,376	$ 4,685,972	$ 8,881,282	$ 2,595,573	$ 316,820	$ 4,527,051	$ 4,557,711	$ 224,840	$ 3,995,611	$ 4,659,809	$ 11,047,718	$ 9,157,222
2026	$ 102,200,000	$ 3,637,911	$ 43,912,376	$ 4,685,972	$ 8,881,282	$ 2,595,573	$ 316,820	$ 4,527,051	$ 4,557,711	$ 224,840	$ 3,995,611	$ 4,659,809	$ 11,047,718	$ 9,157,222
2027	$ 102,200,000	$ 3,637,911	$ 43,912,376	$ 4,685,972	$ 8,881,282	$ 2,595,573	$ 316,820	$ 4,527,051	$ 4,557,711	$ 224,840	$ 3,995,611	$ 4,659,809	$ 11,047,718	$ 9,157,222
2028	$ 102,200,000	$ 3,637,911	$ 43,912,376	$ 4,685,972	$ 8,881,282	$ 2,595,573	$ 316,820	$ 4,527,051	$ 4,557,711	$ 224,840	$ 3,995,611	$ 4,659,809	$ 11,047,718	$ 9,157,222
2029	$ 102,200,000	$ 3,637,911	$ 43,912,376	$ 4,685,972	$ 8,881,282	$ 2,595,573	$ 316,820	$ 4,527,051	$ 4,557,711	$ 224,840	$ 3,995,611	$ 4,659,809	$ 11,047,718	$ 9,157,222
	2nd five years ►	$ 18,189,556	$ 219,561,881	$ 23,429,861	$ 44,406,411	$ 12,977,867	$ 1,584,100	$ 22,635,256	$ 22,788,556	$ 1,124,200	$ 19,978,056	$ 23,299,045	$ 55,238,589	$ 45,786,111
2030	$ 104,448,400	$ 3,717,945	$ 44,878,448	$ 4,789,064	$ 9,076,670	$ 2,652,676	$ 323,790	$ 4,626,646	$ 4,657,981	$ 229,786	$ 4,083,515	$ 4,762,325	$ 11,290,768	$ 9,358,681
2031	$ 104,448,400	$ 3,717,945	$ 44,878,448	$ 4,789,064	$ 9,076,670	$ 2,652,676	$ 323,790	$ 4,626,646	$ 4,657,981	$ 229,786	$ 4,083,515	$ 4,762,325	$ 11,290,768	$ 9,358,681
2032	$ 104,448,400	$ 3,717,945	$ 44,878,448	$ 4,789,064	$ 9,076,670	$ 2,652,676	$ 323,790	$ 4,626,646	$ 4,657,981	$ 229,786	$ 4,083,515	$ 4,762,325	$ 11,290,768	$ 9,358,681
2033	$ 104,448,400	$ 3,717,945	$ 44,878,448	$ 4,789,064	$ 9,076,670	$ 2,652,676	$ 323,790	$ 4,626,646	$ 4,657,981	$ 229,786	$ 4,083,515	$ 4,762,325	$ 11,290,768	$ 9,358,681
2034	$ 104,448,400	$ 3,717,945	$ 44,878,448	$ 4,789,064	$ 9,076,670	$ 2,652,676	$ 323,790	$ 4,626,646	$ 4,657,981	$ 229,786	$ 4,083,515	$ 4,762,325	$ 11,290,768	$ 9,358,681
	3rd five years ►	$ 18,589,726	$ 224,392,242	$ 23,945,318	$ 45,383,352	$ 13,263,380	$ 1,618,950	$ 23,133,232	$ 23,289,904	$ 1,148,932	$ 20,417,573	$ 23,811,624	$ 56,453,838	$ 46,793,405
2035	$ 106,746,265	$ 3,799,740	$ 45,865,774	$ 4,894,423	$ 9,276,357	$ 2,711,035	$ 330,913	$ 4,728,433	$ 4,760,456	$ 234,842	$ 4,173,352	$ 4,867,096	$ 11,539,164	$ 9,564,572
2036	$ 106,746,265	$ 3,799,740	$ 45,865,774	$ 4,894,423	$ 9,276,357	$ 2,711,035	$ 330,913	$ 4,728,433	$ 4,760,456	$ 234,842	$ 4,173,352	$ 4,867,096	$ 11,539,164	$ 9,564,572
2037	$ 106,746,265	$ 3,799,740	$ 45,865,774	$ 4,894,423	$ 9,276,357	$ 2,711,035	$ 330,913	$ 4,728,433	$ 4,760,456	$ 234,842	$ 4,173,352	$ 4,867,096	$ 11,539,164	$ 9,564,572
2038	$ 106,746,265	$ 3,799,740	$ 45,865,774	$ 4,894,423	$ 9,276,357	$ 2,711,035	$ 330,913	$ 4,728,433	$ 4,760,456	$ 234,842	$ 4,173,352	$ 4,867,096	$ 11,539,164	$ 9,564,572
2039	$ 106,746,265	$ 3,799,740	$ 45,865,774	$ 4,894,423	$ 9,276,357	$ 2,711,035	$ 330,913	$ 4,728,433	$ 4,760,456	$ 234,842	$ 4,173,352	$ 4,867,096	$ 11,539,164	$ 9,564,572
	4th five years ►	**$ 18,998,700**	**$ 229,328,872**	**$ 24,472,115**	**$ 46,381,786**	**$ 13,555,174**	**$ 1,654,567**	**$ 23,642,163**	**$ 23,802,282**	**$ 1,174,209**	**$ 20,866,760**	**$ 24,335,480**	**$ 57,695,822**	**$ 47,822,860**
2040	$ 109,094,683	$ 3,883,334	$ 46,874,821	$ 5,002,100	$ 9,480,437	$ 2,770,678	$ 338,194	$ 4,832,458	$ 4,865,186	$ 240,008	$ 4,265,166	$ 4,974,172	$ 11,793,026	$ 9,774,993
	5th five years ►	$ 3,883,334	$ 46,874,821	$ 5,002,100	$ 9,480,437	$ 2,770,678	$ 338,194	$ 4,832,458	$ 4,865,186	$ 240,008	$ 4,265,166	$ 4,974,172	$ 11,793,026	$ 9,774,993
	Total ►	**$ 77,459,317**	**$ 934,993,316**	**$ 99,774,894**	**$ 189,102,486**	**$ 55,265,599**	**$ 6,745,811**	**$ 96,391,108**	**$ 97,043,929**	**$ 4,787,350**	**$ 85,075,555**	**$ 99,217,821**	**$ 235,230,775**	**$ 194,977,869**

$100M per year, 2.2% every 5 years

MPO Targets by MARPA formula

Long Range Transit Capital Forecast Master Tables

Inflation rates based on total FAST Act (2016–2020) funding levels | = final number published in the apportionment table | = preliminary number

SECTION 5307 (inflation rate: 2.08%)

Boston UZA	FFY 2018 Actual (Fast Act)	FFY 2019 Estimate (Fast Act)	FFY 2020 Estimate (Fast Act)	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate
MBTA	$ 143,471,970	$ 146,456,187	$ 149,502,476	$ 152,612,127	$ 155,786,459	$ 159,026,818	$ 162,334,576	$ 165,711,135	$ 169,157,926	$ 172,676,411	$ 176,268,081	$ 179,934,457	$ 183,677,093	$ 187,497,577	$ 191,397,526	$ 195,378,595	$ 199,442,470	$ 203,590,873	$ 207,825,563	$ 212,148,335	$ 216,561,020	$ 221,065,490	$ 225,663,652
BAT	$ 3,103,425	$ 3,167,976	$ 3,233,870	$ 3,301,135	$ 3,369,798	$ 3,439,890	$ 3,511,440	$ 3,584,478	$ 3,659,035	$ 3,735,143	$ 3,812,834	$ 3,892,141	$ 3,973,097	$ 4,055,738	$ 4,140,097	$ 4,226,211	$ 4,314,116	$ 4,403,850	$ 4,495,450	$ 4,588,955	$ 4,684,405	$ 4,781,841	$ 4,881,303
MVRTA	$ 5,801,299	$ 5,921,966	$ 6,045,143	$ 6,170,882	$ 6,299,236	$ 6,430,260	$ 6,564,010	$ 6,700,541	$ 6,839,912	$ 6,982,183	$ 7,127,412	$ 7,275,662	$ 7,426,996	$ 7,581,477	$ 7,739,172	$ 7,900,147	$ 8,064,470	$ 8,232,211	$ 8,403,441	$ 8,578,233	$ 8,756,660	$ 8,938,798	$ 9,124,725
LRTA	$ 3,841,462	$ 3,921,364	$ 4,002,929	$ 4,086,190	$ 4,171,182	$ 4,257,943	$ 4,346,508	$ 4,436,916	$ 4,529,203	$ 4,623,411	$ 4,719,578	$ 4,817,745	$ 4,917,954	$ 5,020,248	$ 5,124,669	$ 5,231,262	$ 5,340,072	$ 5,451,146	$ 5,564,529	$ 5,680,272	$ 5,798,421	$ 5,919,028	$ 6,042,144
GATRA	$ 793,076	$ 809,572	$ 826,411	$ 843,600	$ 861,147	$ 879,059	$ 897,344	$ 916,008	$ 935,061	$ 954,511	$ 974,364	$ 994,631	$ 1,015,320	$ 1,036,438	$ 1,057,996	$ 1,080,002	$ 1,102,466	$ 1,125,398	$ 1,148,806	$ 1,172,701	$ 1,197,093	$ 1,221,993	$ 1,247,410
CATA	$ 544,596	$ 555,924	$ 567,487	$ 579,291	$ 591,340	$ 603,640	$ 616,195	$ 629,012	$ 642,096	$ 655,451	$ 669,085	$ 683,002	$ 697,208	$ 711,710	$ 726,514	$ 741,625	$ 757,051	$ 772,797	$ 788,872	$ 805,280	$ 822,030	$ 839,128	$ 856,582
MWRTA	$ 2,311,164	$ 2,359,236	$ 2,408,308	$ 2,458,401	$ 2,509,536	$ 2,561,734	$ 2,615,018	$ 2,669,411	$ 2,724,934	$ 2,781,613	$ 2,839,471	$ 2,898,532	$ 2,958,821	$ 3,020,365	$ 3,083,188	$ 3,147,318	$ 3,212,783	$ 3,279,609	$ 3,347,824	$ 3,417,459	$ 3,488,542	$ 3,561,104	$ 3,635,175
MART	$ 131,573	$ 134,310	$ 137,103	$ 139,955	$ 142,866	$ 145,838	$ 148,871	$ 151,968	$ 155,129	$ 158,355	$ 161,649	$ 165,011	$ 168,444	$ 171,947	$ 175,524	$ 179,175	$ 182,902	$ 186,706	$ 190,589	$ 194,554	$ 198,600	$ 202,731	$ 206,948
Barnstable UZA	**FFY 2018 Actual**	**FFY 2019 Estimate**	**FFY 2020 Estimate**	**FFY 2021 Estimate**	**FFY 2022 Estimate**	**FFY 2023 Estimate**	**FFY 2024 Estimate**	**FFY 2025 Estimate**	**FFY 2026 Estimate**	**FFY 2027 Estimate**	**FFY 2028 Estimate**	**FFY 2029 Estimate**	**FFY 2030 Estimate**	**FFY 2031 Estimate**	**FFY 2032 Estimate**	**FFY 2033 Estimate**	**FFY 2034 Estimate**	**FFY 2035 Estimate**	**FFY 2036 Estimate**	**FFY 2037 Estimate**	**FFY 2038 Estimate**	**FFY 2039 Estimate**	**FFY 2040 Estimate**
CCRTA	$ 9,058,562	$ 9,246,980	$ 9,439,317	$ 9,635,655	$ 9,836,077	$ 10,040,667	$ 10,249,513	$ 10,462,703	$ 10,680,327	$ 10,902,478	$ 11,129,249	$ 11,360,738	$ 11,597,041	$ 11,838,260	$ 12,084,495	$ 12,335,853	$ 12,592,439	$ 12,854,361	$ 13,121,732	$ 13,394,664	$ 13,673,273	$ 13,957,677	$ 14,247,997
GATRA	$ 629,354	$ 642,445	$ 655,807	$ 669,448	$ 683,373	$ 697,587	$ 712,097	$ 726,908	$ 742,028	$ 757,462	$ 773,217	$ 789,300	$ 805,718	$ 822,477	$ 839,584	$ 857,048	$ 874,874	$ 893,072	$ 911,647	$ 930,610	$ 949,966	$ 969,726	$ 989,896
Springfield UZA	**FFY 2018 Actual**	**FFY 2019 Estimate**	**FFY 2020 Estimate**	**FFY 2021 Estimate**	**FFY 2022 Estimate**	**FFY 2023 Estimate**	**FFY 2024 Estimate**	**FFY 2025 Estimate**	**FFY 2026 Estimate**	**FFY 2027 Estimate**	**FFY 2028 Estimate**	**FFY 2029 Estimate**	**FFY 2030 Estimate**	**FFY 2031 Estimate**	**FFY 2032 Estimate**	**FFY 2033 Estimate**	**FFY 2034 Estimate**	**FFY 2035 Estimate**	**FFY 2036 Estimate**	**FFY 2037 Estimate**	**FFY 2038 Estimate**	**FFY 2039 Estimate**	**FFY 2040 Estimate**
PVTA	$ 12,552,862	$ 12,813,962	$ 13,080,492	$ 13,352,566	$ 13,630,300	$ 13,913,810	$ 14,203,217	$ 14,498,644	$ 14,800,216	$ 15,108,060	$ 15,422,308	$ 15,743,092	$ 16,070,548	$ 16,404,816	$ 16,746,036	$ 17,094,353	$ 17,449,916	$ 17,812,874	$ 18,183,382	$ 18,561,596	$ 18,947,677	$ 19,341,789	$ 19,744,098
Worcester UZA	**FFY 2018 Actual**	**FFY 2019 Estimate**	**FFY 2020 Estimate**	**FFY 2021 Estimate**	**FFY 2022 Estimate**	**FFY 2023 Estimate**	**FFY 2024 Estimate**	**FFY 2025 Estimate**	**FFY 2026 Estimate**	**FFY 2027 Estimate**	**FFY 2028 Estimate**	**FFY 2029 Estimate**	**FFY 2030 Estimate**	**FFY 2031 Estimate**	**FFY 2032 Estimate**	**FFY 2033 Estimate**	**FFY 2034 Estimate**	**FFY 2035 Estimate**	**FFY 2036 Estimate**	**FFY 2037 Estimate**	**FFY 2038 Estimate**	**FFY 2039 Estimate**	**FFY 2040 Estimate**
WRTA	$ 10,018,472	$ 10,226,856	$ 10,439,575	$ 10,656,718	$ 10,878,378	$ 11,104,648	$ 11,335,625	$ 11,571,406	$ 11,812,091	$ 12,057,782	$ 12,308,584	$ 12,564,603	$ 12,825,947	$ 13,092,726	$ 13,365,055	$ 13,643,048	$ 13,926,823	$ 14,216,501	$ 14,512,205	$ 14,814,058	$ 15,122,191	$ 15,436,732	$ 15,757,817
MART	$ 47,199	$ 48,181	$ 49,183	$ 50,206	$ 51,250	$ 52,316	$ 53,404	$ 54,515	$ 55,649	$ 56,807	$ 57,988	$ 59,194	$ 60,426	$ 61,682	$ 62,965	$ 64,275	$ 65,612	$ 66,977	$ 68,370	$ 69,792	$ 71,244	$ 72,725	$ 74,238
Massachusetts	**FFY 2018 Actual**	**FFY 2019 Estimate**	**FFY 2020 Estimate**	**FFY 2021 Estimate**	**FFY 2022 Estimate**	**FFY 2023 Estimate**	**FFY 2024 Estimate**	**FFY 2025 Estimate**	**FFY 2026 Estimate**	**FFY 2027 Estimate**	**FFY 2028 Estimate**	**FFY 2029 Estimate**	**FFY 2030 Estimate**	**FFY 2031 Estimate**	**FFY 2032 Estimate**	**FFY 2033 Estimate**	**FFY 2034 Estimate**	**FFY 2035 Estimate**	**FFY 2036 Estimate**	**FFY 2037 Estimate**	**FFY 2038 Estimate**	**FFY 2039 Estimate**	**FFY 2040 Estimate**
MART	$ 3,165,772	$ 3,231,620	$ 3,298,838	$ 3,367,454	$ 3,437,497	$ 3,508,997	$ 3,581,984	$ 3,656,489	$ 3,732,544	$ 3,810,181	$ 3,889,433	$ 3,970,333	$ 4,052,916	$ 4,137,216	$ 4,223,270	$ 4,311,114	$ 4,400,786	$ 4,492,322	$ 4,585,762	$ 4,681,146	$ 4,778,514	$ 4,877,907	$ 4,979,368
SRTA	$ 4,210,631	$ 4,298,212	$ 4,387,615	$ 4,478,877	$ 4,572,038	$ 4,667,136	$ 4,764,213	$ 4,863,308	$ 4,964,465	$ 5,067,726	$ 5,173,135	$ 5,280,736	$ 5,390,575	$ 5,502,699	$ 5,617,155	$ 5,733,992	$ 5,853,259	$ 5,975,007	$ 6,099,287	$ 6,226,152	$ 6,355,656	$ 6,487,854	$ 6,622,801
BRTA	$ 1,797,581	$ 1,834,971	$ 1,873,138	$ 1,912,099	$ 1,951,871	$ 1,992,470	$ 2,033,913	$ 2,076,219	$ 2,119,404	$ 2,163,488	$ 2,208,488	$ 2,254,425	$ 2,301,317	$ 2,349,184	$ 2,398,047	$ 2,447,927	$ 2,498,843	$ 2,550,819	$ 2,603,876	$ 2,658,037	$ 2,713,324	$ 2,769,761	$ 2,827,372
Out-Of-State UZAs	**FFY 2018 Actual**	**FFY 2019 Estimate**	**FFY 2020 Estimate**	**FFY 2021 Estimate**	**FFY 2022 Estimate**	**FFY 2023 Estimate**	**FFY 2024 Estimate**	**FFY 2025 Estimate**	**FFY 2026 Estimate**	**FFY 2027 Estimate**	**FFY 2028 Estimate**	**FFY 2029 Estimate**	**FFY 2030 Estimate**	**FFY 2031 Estimate**	**FFY 2032 Estimate**	**FFY 2033 Estimate**	**FFY 2034 Estimate**	**FFY 2035 Estimate**	**FFY 2036 Estimate**	**FFY 2037 Estimate**	**FFY 2038 Estimate**	**FFY 2039 Estimate**	**FFY 2040 Estimate**
GATRA (RI)	$ 3,244,055	$ 3,311,531	$ 3,380,411	$ 3,450,724	$ 3,522,499	$ 3,595,767	$ 3,670,559	$ 3,746,906	$ 3,824,842	$ 3,904,399	$ 3,985,610	$ 4,068,511	$ 4,153,136	$ 4,239,521	$ 4,327,703	$ 4,417,719	$ 4,509,608	$ 4,603,408	$ 4,699,159	$ 4,796,901	$ 4,896,677	$ 4,998,528	$ 5,102,497
SRTA (RI)	$ 3,047,337	$ 3,110,722	$ 3,175,425	$ 3,241,473	$ 3,308,896	$ 3,377,721	$ 3,447,978	$ 3,519,696	$ 3,592,905	$ 3,667,638	$ 3,743,925	$ 3,821,798	$ 3,901,292	$ 3,982,439	$ 4,065,273	$ 4,149,831	$ 4,236,147	$ 4,324,259	$ 4,414,204	$ 4,506,019	$ 4,599,745	$ 4,695,419	$ 4,793,084
LRTA (NH)	$ 119,286	$ 121,767	$ 124,300	$ 126,885	$ 129,525	$ 132,219	$ 134,969	$ 137,776	$ 140,642	$ 143,567	$ 146,553	$ 149,602	$ 152,713	$ 155,890	$ 159,132	$ 162,442	$ 165,821	$ 169,270	$ 172,791	$ 176,385	$ 180,054	$ 183,799	$ 187,622
Section 5307	**FFY 2018 Actual**	**FFY 2019 Estimate**	**FFY 2020 Estimate**	**FFY 2021 Estimate**	**FFY 2022 Estimate**	**FFY 2023 Estimate**	**FFY 2024 Estimate**	**FFY 2025 Estimate**	**FFY 2026 Estimate**	**FFY 2027 Estimate**	**FFY 2028 Estimate**	**FFY 2029 Estimate**	**FFY 2030 Estimate**	**FFY 2031 Estimate**	**FFY 2032 Estimate**	**FFY 2033 Estimate**	**FFY 2034 Estimate**	**FFY 2035 Estimate**	**FFY 2036 Estimate**	**FFY 2037 Estimate**	**FFY 2038 Estimate**	**FFY 2039 Estimate**	**FFY 2040 Estimate**
MBTA	$ 143,471,970	$ 146,456,187	$ 149,502,476	$ 152,612,127	$ 155,786,459	$ 159,026,818	$ 162,334,576	$ 165,711,135	$ 169,157,926	$ 172,676,411	$ 176,268,081	$ 179,934,457	$ 183,677,093	$ 187,497,577	$ 191,397,526	$ 195,378,595	$ 199,442,470	$ 203,590,873	$ 207,825,563	$ 212,148,335	$ 216,561,020	$ 221,065,490	$ 225,663,652
BAT	$ 3,103,425	$ 3,167,976	$ 3,233,870	$ 3,301,135	$ 3,369,798	$ 3,439,890	$ 3,511,440	$ 3,584,478	$ 3,659,035	$ 3,735,143	$ 3,812,834	$ 3,892,141	$ 3,973,097	$ 4,055,738	$ 4,140,097	$ 4,226,211	$ 4,314,116	$ 4,403,850	$ 4,495,450	$ 4,588,955	$ 4,684,405	$ 4,781,841	$ 4,881,303
MVRTA	$ 5,801,299	$ 5,921,966	$ 6,045,143	$ 6,170,882	$ 6,299,236	$ 6,430,260	$ 6,564,010	$ 6,700,541	$ 6,839,912	$ 6,982,183	$ 7,127,412	$ 7,275,662	$ 7,426,996	$ 7,581,477	$ 7,739,172	$ 7,900,147	$ 8,064,470	$ 8,232,211	$ 8,403,441	$ 8,578,233	$ 8,756,660	$ 8,938,798	$ 9,124,725
LRTA	$ 3,960,748	$ 4,043,132	$ 4,127,229	$ 4,213,075	$ 4,300,707	$ 4,390,162	$ 4,481,477	$ 4,574,692	$ 4,669,845	$ 4,766,978	$ 4,866,131	$ 4,967,347	$ 5,070,668	$ 5,176,138	$ 5,283,801	$ 5,393,704	$ 5,505,893	$ 5,620,416	$ 5,737,321	$ 5,856,657	$ 5,978,475	$ 6,102,828	$ 6,229,766
CCRTA	$ 9,058,562	$ 9,246,980	$ 9,439,317	$ 9,635,655	$ 9,836,077	$ 10,040,667	$ 10,249,513	$ 10,462,703	$ 10,680,327	$ 10,902,478	$ 11,129,249	$ 11,360,738	$ 11,597,041	$ 11,838,260	$ 12,084,495	$ 12,335,853	$ 12,592,439	$ 12,854,361	$ 13,121,732	$ 13,394,664	$ 13,673,273	$ 13,957,677	$ 14,247,997
GATRA	$ 4,666,485	$ 4,763,548	$ 4,862,630	$ 4,963,772	$ 5,067,019	$ 5,172,413	$ 5,279,999	$ 5,389,823	$ 5,501,931	$ 5,616,371	$ 5,733,192	$ 5,852,442	$ 5,974,173	$ 6,098,436	$ 6,225,283	$ 6,354,769	$ 6,486,949	$ 6,621,877	$ 6,759,612	$ 6,900,212	$ 7,043,737	$ 7,190,246	$ 7,339,803
CATA	$ 544,596	$ 555,924	$ 567,487	$ 579,291	$ 591,340	$ 603,640	$ 616,195	$ 629,012	$ 642,096	$ 655,451	$ 669,085	$ 683,002	$ 697,208	$ 711,710	$ 726,514	$ 741,625	$ 757,051	$ 772,797	$ 788,872	$ 805,280	$ 822,030	$ 839,128	$ 856,582
MWRTA	$ 2,311,164	$ 2,359,236	$ 2,408,308	$ 2,458,401	$ 2,509,536	$ 2,561,734	$ 2,615,018	$ 2,669,411	$ 2,724,934	$ 2,781,613	$ 2,839,471	$ 2,898,532	$ 2,958,821	$ 3,020,365	$ 3,083,188	$ 3,147,318	$ 3,212,783	$ 3,279,609	$ 3,347,824	$ 3,417,459	$ 3,488,542	$ 3,561,104	$ 3,635,175
PVTA	$ 12,552,862	$ 12,813,962	$ 13,080,492	$ 13,352,566	$ 13,630,300	$ 13,913,810	$ 14,203,217	$ 14,498,644	$ 14,800,216	$ 15,108,060	$ 15,422,308	$ 15,743,092	$ 16,070,548	$ 16,404,816	$ 16,746,036	$ 17,094,353	$ 17,449,916	$ 17,812,874	$ 18,183,382	$ 18,561,596	$ 18,947,677	$ 19,341,789	$ 19,744,098
WRTA	$ 10,018,472	$ 10,226,856	$ 10,439,575	$ 10,656,718	$ 10,878,378	$ 11,104,648	$ 11,335,625	$ 11,571,406	$ 11,812,091	$ 12,057,782	$ 12,308,584	$ 12,564,603	$ 12,825,947	$ 13,092,726	$ 13,365,055	$ 13,643,048	$ 13,926,823	$ 14,216,501	$ 14,512,205	$ 14,814,058	$ 15,122,191	$ 15,436,732	$ 15,757,817
MART	$ 3,344,544	$ 3,414,111	$ 3,485,124	$ 3,557,615	$ 3,631,613	$ 3,707,151	$ 3,784,259	$ 3,862,972	$ 3,943,322	$ 4,025,343	$ 4,109,070	$ 4,194,539	$ 4,281,785	$ 4,370,846	$ 4,461,760	$ 4,554,564	$ 4,649,299	$ 4,746,005	$ 4,844,722	$ 4,945,492	$ 5,048,358	$ 5,153,364	$ 5,260,554
SRTA	$ 7,257,968	$ 7,408,934	$ 7,563,040	$ 7,720,351	$ 7,880,934	$ 8,044,858	$ 8,212,191	$ 8,383,004	$ 8,557,371	$ 8,735,364	$ 8,917,059	$ 9,102,534	$ 9,291,867	$ 9,485,138	$ 9,682,429	$ 9,883,823	$ 10,089,407	$ 10,299,266	$ 10,513,491	$ 10,732,172	$ 10,955,401	$ 11,183,273	$ 11,415,885
BRTA	$ 1,797,581	$ 1,834,971	$ 1,873,138	$ 1,912,099	$ 1,951,871	$ 1,992,470	$ 2,033,913	$ 2,076,219	$ 2,119,404	$ 2,163,488	$ 2,208,488	$ 2,254,425	$ 2,301,317	$ 2,349,184	$ 2,398,047	$ 2,447,927	$ 2,498,843	$ 2,550,819	$ 2,603,876	$ 2,658,037	$ 2,713,324	$ 2,769,761	$ 2,827,372
Total	$ 207,889,676	$ 212,213,781	$ 216,627,828	$ 221,133,687	$ 225,733,267	$ 230,428,519	$ 235,221,433	$ 240,114,038	$ 245,108,410	$ 250,206,665	$ 255,410,964	$ 260,723,512	$ 266,146,561	$ 271,682,410	$ 277,333,404	$ 283,101,938	$ 288,990,459	$ 295,001,460	$ 301,137,491	$ 307,401,150	$ 313,795,094	$ 320,322,032	$ 326,984,731

SECTION 5310 (inflation rate: 2.09%)

Section 5310	FFY 2018 Actual (Fast Act)	FFY 2019 Estimate (Fast Act)	FFY 2020 Estimate (Fast Act)	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate
Boston	$ 3,524,282	$ 3,597,939	$ 3,673,136	$ 3,749,905	$ 3,828,278	$ 3,908,289	$ 3,989,972	$ 4,073,363	$ 4,158,496	$ 4,245,409	$ 4,334,138	$ 4,424,721	$ 4,517,198	$ 4,611,607	$ 4,707,990	$ 4,806,387	$ 4,906,840	$ 5,009,393	$ 5,114,089	$ 5,220,974	$ 5,330,092	$ 5,441,491	$ 5,555,218
Barnstable	$ 319,835	$ 326,520	$ 333,344	$ 340,311	$ 347,423	$ 354,684	$ 362,097	$ 369,665	$ 377,391	$ 385,279	$ 393,331	$ 401,551	$ 409,944	$ 418,512	$ 427,259	$ 436,188	$ 445,305	$ 454,612	$ 464,113	$ 473,813	$ 483,716	$ 493,825	$ 504,146
Worcester	$ 413,044	$ 421,677	$ 430,490	$ 439,487	$ 448,672	$ 458,049	$ 467,623	$ 477,396	$ 487,374	$ 497,560	$ 507,959	$ 518,575	$ 529,413	$ 540,478	$ 551,774	$ 563,306	$ 575,079	$ 587,098	$ 599,369	$ 611,895	$ 624,684	$ 637,740	$ 651,069
Springfield	$ 539,877	$ 551,160	$ 562,680	$ 574,440	$ 586,445	$ 598,702	$ 611,215	$ 623,989	$ 637,031	$ 650,345	$ 663,937	$ 677,813	$ 691,980	$ 706,442	$ 721,207	$ 736,280	$ 751,668	$ 767,378	$ 783,416	$ 799,790	$ 816,505	$ 833,570	$ 850,992
Providence	$ 184,757	$ 188,618	$ 192,561	$ 196,585	$ 200,694	$ 204,888	$ 209,170	$ 213,542	$ 218,005	$ 222,561	$ 227,213	$ 231,962	$ 236,810	$ 241,759	$ 246,812	$ 251,970	$ 257,236	$ 262,612	$ 268,101	$ 273,704	$ 279,425	$ 285,265	$ 291,227
Small Urban	$ 628,752	$ 641,893	$ 655,308	$ 669,004	$ 682,987	$ 697,261	$ 711,834	$ 726,711	$ 741,899	$ 757,405	$ 773,235	$ 789,395	$ 805,894	$ 822,737	$ 839,932	$ 857,487	$ 875,408	$ 893,704	$ 912,383	$ 931,452	$ 950,919	$ 970,793	$ 991,083
Rural	$ 357,706	$ 365,182	$ 372,814	$ 380,606	$ 388,561	$ 396,682	$ 404,972	$ 413,436	$ 422,077	$ 430,899	$ 439,904	$ 449,098	$ 458,485	$ 468,067	$ 477,849	$ 487,836	$ 498,032	$ 508,441	$ 519,068	$ 529,916	$ 540,991	$ 552,298	$ 563,841
Total	$ 5,968,253	$ 6,092,989	$ 6,220,333	$ 6,350,338	$ 6,483,060	$ 6,618,556	$ 6,756,884	$ 6,898,103	$ 7,042,273	$ 7,189,456	$ 7,339,716	$ 7,493,116	$ 7,649,722	$ 7,809,602	$ 7,972,822	$ 8,139,454	$ 8,309,569	$ 8,483,239	$ 8,660,538	$ 8,841,544	$ 9,026,332	$ 9,214,982	$ 9,407,575

SECTION 5311 (inflation rate: 2.09%)

	Fast Act																							
	FFY 2018 Actual	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
VTA	$ 895,569	$ 914,286	$ 933,395	$ 952,903	$ 972,819	$ 993,151	$ 1,013,907	$ 1,035,098	$ 1,056,732	$ 1,078,817	$ 1,101,365	$ 1,124,383	$ 1,147,883	$ 1,171,873	$ 1,196,366	$ 1,221,370	$ 1,246,896	$ 1,272,956	$ 1,299,561	$ 1,326,722	$ 1,354,450	$ 1,382,758	$ 1,411,658	
NRTA	$ 562,267	$ 574,018	$ 586,015	$ 598,263	$ 610,767	$ 623,532	$ 636,564	$ 649,868	$ 663,450	$ 677,316	$ 691,472	$ 705,924	$ 720,678	$ 735,740	$ 751,117	$ 766,815	$ 782,842	$ 799,203	$ 815,906	$ 832,959	$ 850,368	$ 868,140	$ 886,284	
BRTA	$ 278,234	$ 284,049	$ 289,986	$ 296,046	$ 302,234	$ 308,550	$ 314,999	$ 321,583	$ 328,304	$ 335,165	$ 342,170	$ 349,322	$ 356,622	$ 364,076	$ 371,685	$ 379,453	$ 387,384	$ 395,480	$ 403,746	$ 412,184	$ 420,799	$ 429,593	$ 438,572	
FRTA	$ 1,162,211	$ 1,186,501	$ 1,211,299	$ 1,236,615	$ 1,262,460	$ 1,288,846	$ 1,315,783	$ 1,343,283	$ 1,371,357	$ 1,400,019	$ 1,429,279	$ 1,459,151	$ 1,489,647	$ 1,520,781	$ 1,552,565	$ 1,585,014	$ 1,618,141	$ 1,651,960	$ 1,686,486	$ 1,721,733	$ 1,757,717	$ 1,794,454	$ 1,831,958	
Total	$ 2,898,281	$ 2,958,855	$ 3,020,695	$ 3,083,828	$ 3,148,280	$ 3,214,079	$ 3,281,253	$ 3,349,831	$ 3,419,843	$ 3,491,317	$ 3,564,286	$ 3,638,779	$ 3,714,830	$ 3,792,470	$ 3,871,732	$ 3,952,652	$ 4,035,262	$ 4,119,599	$ 4,205,699	$ 4,293,598	$ 4,383,334	$ 4,474,946	$ 4,568,472	

SECTION 5311(f) (inflation rate: 2.09%)

	Fast Act																							
	FFY 2018 Actual	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
Statewide	$ 579,656	$ 591,771	$ 604,139	$ 616,765	$ 629,656	$ 642,816	$ 656,250	$ 669,966	$ 683,968	$ 698,263	$ 712,857	$ 727,756	$ 742,966	$ 758,494	$ 774,346	$ 790,530	$ 807,052	$ 823,920	$ 841,139	$ 858,719	$ 876,667	$ 894,989	$ 913,694	

SECTION 5337 (inflation rate: 1.72%) Apportionment by UZA

	Fast Act																							
	FFY 2018 Actual	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
Boston	$ 162,911,949	$ 165,714,035	$ 168,564,316	$ 171,463,622	$ 174,412,796	$ 177,412,697	$ 180,464,195	$ 183,568,179	$ 186,725,552	$ 189,937,231	$ 193,204,152	$ 196,527,263	$ 199,907,532	$ 203,345,942	$ 206,843,492	$ 210,401,200	$ 214,020,100	$ 217,701,246	$ 221,445,708	$ 225,254,574	$ 229,128,952	$ 233,069,970	$ 237,078,774	
Worcester	$ 3,261,985	$ 3,318,091	$ 3,375,162	$ 3,433,215	$ 3,492,266	$ 3,552,333	$ 3,613,434	$ 3,675,585	$ 3,738,805	$ 3,803,112	$ 3,868,526	$ 3,935,064	$ 4,002,747	$ 4,071,595	$ 4,141,626	$ 4,212,862	$ 4,285,323	$ 4,359,031	$ 4,434,006	$ 4,510,271	$ 4,587,848	$ 4,666,759	$ 4,747,027	
Providence (GATRA) 21.9%	$ 1,103,204	$ 1,122,179	$ 1,141,481	$ 1,161,114	$ 1,181,085	$ 1,201,400	$ 1,222,064	$ 1,243,083	$ 1,264,464	$ 1,286,213	$ 1,308,336	$ 1,330,839	$ 1,353,730	$ 1,377,014	$ 1,400,699	$ 1,424,791	$ 1,449,297	$ 1,474,225	$ 1,499,582	$ 1,525,375	$ 1,551,611	$ 1,578,299	$ 1,605,445	
Total	$ 167,277,138	$ 170,154,305	$ 173,080,959	$ 176,057,951	$ 179,086,148	$ 182,166,430	$ 185,299,692	$ 188,486,847	$ 191,728,821	$ 195,026,557	$ 198,381,013	$ 201,793,167	$ 205,264,009	$ 208,794,550	$ 212,385,816	$ 216,038,852	$ 219,754,721	$ 223,534,502	$ 227,379,295	$ 231,290,219	$ 235,268,411	$ 239,315,028	$ 243,431,246	

SECTION 5339 (inflation rate: 3.83%)

	Fast Act																							
Boston UZA	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
MBTA	$ 6,537,703	$ 6,788,097	$ 7,048,082	$ 7,318,023	$ 7,598,303	$ 7,889,318	$ 8,191,479	$ 8,505,213	$ 8,830,963	$ 9,169,188	$ 9,520,368	$ 9,884,998	$ 10,263,594	$ 10,656,690	$ 11,064,841	$ 11,488,624	$ 11,928,638	$ 12,385,505	$ 12,859,870	$ 13,352,403	$ 13,863,800	$ 14,394,784	$ 14,946,104	
Barnstable UZA	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
CCRTA	$ 824,539	$ 856,119	$ 888,908	$ 922,953	$ 958,302	$ 995,005	$ 1,033,114	$ 1,072,682	$ 1,113,766	$ 1,156,423	$ 1,200,714	$ 1,246,702	$ 1,294,451	$ 1,344,028	$ 1,395,504	$ 1,448,952	$ 1,504,447	$ 1,562,067	$ 1,621,894	$ 1,684,013	$ 1,748,511	$ 1,815,479	$ 1,885,011	
GATRA	$ 90,355	$ 93,816	$ 97,409	$ 101,139	$ 105,013	$ 109,035	$ 113,211	$ 117,547	$ 122,049	$ 126,724	$ 131,577	$ 136,617	$ 141,849	$ 147,282	$ 152,923	$ 158,780	$ 164,861	$ 171,175	$ 177,731	$ 184,538	$ 191,606	$ 198,945	$ 206,564	
Springfield UZA	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
PVTA (no preven	$ 1,241,528	$ 1,289,079	$ 1,338,450	$ 1,389,713	$ 1,442,939	$ 1,498,203	$ 1,555,585	$ 1,615,164	$ 1,677,024	$ 1,741,254	$ 1,807,944	$ 1,877,189	$ 1,949,085	$ 2,023,735	$ 2,101,244	$ 2,181,722	$ 2,265,282	$ 2,352,042	$ 2,442,125	$ 2,535,658	$ 2,632,774	$ 2,733,609	$ 2,838,307	
Worcester UZA	FFY 2018 Actual	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
WRTA	$ 625,329	$ 649,279	$ 674,146	$ 699,966	$ 726,775	$ 754,610	$ 783,512	$ 813,521	$ 844,678	$ 877,030	$ 910,620	$ 945,497	$ 981,709	$ 1,019,309	$ 1,058,348	$ 1,098,883	$ 1,140,970	$ 1,184,669	$ 1,230,042	$ 1,277,153	$ 1,326,068	$ 1,376,856	$ 1,429,590	
MART	$ 8,941	$ 9,283	$ 9,639	$ 10,008	$ 10,391	$ 10,789	$ 11,203	$ 11,632	$ 12,077	$ 12,540	$ 13,020	$ 13,519	$ 14,037	$ 14,574	$ 15,132	$ 15,712	$ 16,314	$ 16,938	$ 17,587	$ 18,261	$ 18,960	$ 19,686	$ 20,440	
Out-Of-State UZAs	FFY 2018 Actual	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
GATRA (RI)	$ 172,008	$ 178,596	$ 185,436	$ 192,538	$ 199,913	$ 207,569	$ 215,519	$ 223,773	$ 232,344	$ 241,243	$ 250,482	$ 260,076	$ 270,037	$ 280,379	$ 291,118	$ 302,268	$ 313,844	$ 325,865	$ 338,345	$ 351,304	$ 364,759	$ 378,729	$ 393,234	
SRTA (RI)	$ 161,578	$ 167,766	$ 174,192	$ 180,863	$ 187,791	$ 194,983	$ 202,451	$ 210,205	$ 218,255	$ 226,615	$ 235,294	$ 244,306	$ 253,663	$ 263,378	$ 273,465	$ 283,939	$ 294,814	$ 306,105	$ 317,829	$ 330,002	$ 342,641	$ 355,764	$ 369,390	
Other Apportionments	FFY 2018 Actual	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
Small Urban	$ 698,200	$ 724,941	$ 752,706	$ 781,535	$ 811,468	$ 842,547	$ 874,817	$ 908,322	$ 943,111	$ 979,232	$ 1,016,736	$ 1,055,677	$ 1,096,110	$ 1,138,091	$ 1,181,680	$ 1,226,938	$ 1,273,930	$ 1,322,721	$ 1,373,382	$ 1,425,982	$ 1,480,597	$ 1,537,304	$ 1,596,183	
Statewide	$ 3,500,000	$ 3,634,050	$ 3,773,234	$ 3,917,749	$ 4,067,799	$ 4,223,595	$ 4,385,359	$ 4,553,318	$ 4,727,711	$ 4,908,782	$ 5,096,788	$ 5,291,995	$ 5,494,679	$ 5,705,125	$ 5,923,631	$ 6,150,506	$ 6,386,070	$ 6,630,657	$ 6,884,611	$ 7,148,292	$ 7,422,071	$ 7,706,337	$ 8,001,489	
By RTA	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
MBTA	$ 6,537,703	$ 6,788,097	$ 7,048,082	$ 7,318,023	$ 7,598,303	$ 7,889,318	$ 8,191,479	$ 8,505,213	$ 8,830,963	$ 9,169,188	$ 9,520,368	$ 9,884,998	$ 10,263,594	$ 10,656,690	$ 11,064,841	$ 11,488,624	$ 11,928,638	$ 12,385,505	$ 12,859,870	$ 13,352,403	$ 13,863,800	$ 14,394,784	$ 14,946,104	
CCRTA	$ 824,539	$ 856,119	$ 888,908	$ 922,953	$ 958,302	$ 995,005	$ 1,033,114	$ 1,072,682	$ 1,113,766	$ 1,156,423	$ 1,200,714	$ 1,246,702	$ 1,294,451	$ 1,344,028	$ 1,395,504	$ 1,448,952	$ 1,504,447	$ 1,562,067	$ 1,621,894	$ 1,684,013	$ 1,748,511	$ 1,815,479	$ 1,885,011	
GATRA	$ 262,363	$ 272,412	$ 282,845	$ 293,678	$ 304,926	$ 316,604	$ 328,730	$ 341,321	$ 354,393	$ 367,966	$ 382,060	$ 396,692	$ 411,886	$ 427,661	$ 444,040	$ 461,047	$ 478,705	$ 497,040	$ 516,076	$ 535,842	$ 556,365	$ 577,674	$ 599,799	
PVTA	$ 1,241,528	$ 1,289,079	$ 1,338,450	$ 1,389,713	$ 1,442,939	$ 1,498,203	$ 1,555,585	$ 1,615,164	$ 1,677,024	$ 1,741,254	$ 1,807,944	$ 1,877,189	$ 1,949,085	$ 2,023,735	$ 2,101,244	$ 2,181,722	$ 2,265,282	$ 2,352,042	$ 2,442,125	$ 2,535,658	$ 2,632,774	$ 2,733,609	$ 2,838,307	
WRTA	$ 625,329	$ 649,279	$ 674,146	$ 699,966	$ 726,775	$ 754,610	$ 783,512	$ 813,521	$ 844,678	$ 877,030	$ 910,620	$ 945,497	$ 981,709	$ 1,019,309	$ 1,058,348	$ 1,098,883	$ 1,140,970	$ 1,184,669	$ 1,230,042	$ 1,277,153	$ 1,326,068	$ 1,376,856	$ 1,429,590	
MART	$ 8,941	$ 9,283	$ 9,639	$ 10,008	$ 10,391	$ 10,789	$ 11,203	$ 11,632	$ 12,077	$ 12,540	$ 13,020	$ 13,519	$ 14,037	$ 14,574	$ 15,132	$ 15,712	$ 16,314	$ 16,938	$ 17,587	$ 18,261	$ 18,960	$ 19,686	$ 20,440	
SRTA	$ 161,578	$ 167,766	$ 174,192	$ 180,863	$ 187,791	$ 194,983	$ 202,451	$ 210,205	$ 218,255	$ 226,615	$ 235,294	$ 244,306	$ 253,663	$ 263,378	$ 273,465	$ 283,939	$ 294,814	$ 306,105	$ 317,829	$ 330,002	$ 342,641	$ 355,764	$ 369,390	
Total	$ 9,661,981	$ 10,032,035	$ 10,416,262	$ 10,815,205	$ 11,229,427	$ 11,659,514	$ 12,106,074	$ 12,569,736	$ 13,051,157	$ 13,551,017	$ 14,070,021	$ 14,608,902	$ 15,168,423	$ 15,749,374	$ 16,352,575	$ 16,978,879	$ 17,629,170	$ 18,304,367	$ 19,005,424	$ 19,733,332	$ 20,489,119	$ 21,273,852	$ 22,088,640	

Town Name	BDEPT	BIN	Over	Under	Owner Code	Owner	Hist. Code	FC Code	Functional Class	Year Built	Year Rebuilt	AASHTO	Deficiency	Bridge Area (sq.m.)	On NHS	Health Index	Posted	Closed	Clearance Over (m)	Clearance Under (m)
Barnstable	B01001	41F	HWY S MAIN ST	WATER BUMPS RIVER	03	Town Agency	Z	16	Urban Minor Arterial	1957		28	SD	555.4	N	80	Y	N	0	0
Barnstable	B01002	AED	HWY BEACH RD	WATER CENTERVILLE RIVER	03	Town Agency	?	16	Urban Minor Arterial	2002		82		356.5	N	100	N	N	0	0
Barnstable	B01003	435	HWY BRIDGE ST	WATER WEST-NORTH BAY	03	Town Agency	N	17	Urban Collector	1946		46.9		579	N	86.1	Y	N	0	0
Barnstable	B01004	434	HWY MILLWAY RD	WATER MARASPIN CREEK	03	Town Agency		19	Urban Local	1936	1996	79.9		72.1	N	73.1	Y	N	0	0
Barnstable	B01005	433	HWY KEVENEY LN	WATER MILL CREEK	03	Town Agency		19	Urban Local	1978		74.8		89.7	N	98.8	N	N	0	0
Barnstable	B01006	AEC	HWY SCHOOL ST	WATER SANTUIT RIVER	03	Town Agency	?	16	Urban Minor Arterial	2001		75.9		186.7	N	100	N	N	0	0
Barnstable	B01011	49T	ST149 MTNG HSE WAY	US 6 WB/MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1950		74.1		214.9	N	99.2	N	N	0	4.16
Barnstable	B01012	4AP	HWY OAK ST	US 6 WB/MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1950		76.4		193.2	N	93.2	N	N	0	4.29
Barnstable	B01014	4AN	HWY OAK ST	US 6 EB/MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1950		67.1		193.2	N	91.1	N	N	0	4.41
Barnstable	B01015	46J	US 6 EB/MD CP HWY	HWY PHINNEYS LN	01	State Highway Agency	Z	12	Freeway/Expressway	1966		87.9		530.6	Y	99.1	N	N	0	4.67
Barnstable	B01015	46K	US 6 WB/MD CP HWY	HWY PHINNEYS LN	01	State Highway Agency	Z	12	Freeway/Expressway	1953		82.4		550.7	Y	87.6	N	N	0	4.67
Barnstable	B01016	49R	ST149 MTNG HSE WAY	US 6 EB/MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1953		69.2		233.6	N	99.5	N	N	0	4.41
Barnstable	B01018	46L	US 6 WB/MD CP HWY	HWY MARY DUNN RD	01	State Highway Agency	Z	12	Freeway/Expressway	1953		79.4		550.7	Y	96.2	N	N	0	4.72
Barnstable	B01018	46M	US 6 EB/MD CP HWY	HWY MARY DUNN RD	01	State Highway Agency	Z	12	Freeway/Expressway	1966		92.7		530.6	Y	98.4	N	N	0	4.4
Barnstable	B01019	46G	US 6 WB/MD CP HWY	ST132 IYANNOUGH RD	01	State Highway Agency	Z	16	Urban Minor Arterial	1966		77.4		725.2	Y	100	N	N	0	4.49
Barnstable	B01019	46H	US 6 EB/MD CP HWY	ST132 IYANNOUGH RD	01	State Highway Agency	Z	12	Freeway/Expressway	1966		96.8		704.5	Y	100	N	N	0	4.52
Bourne	B17001	41H	HWY SHORE RD	WATER POCASSET RIVER	03	Town Agency		16	Urban Minor Arterial	1939		53.9		262	N	65.5	Y	N	0	0
Bourne	B17002	41J	HWY SHORE RD	WATER BACK RIVER	03	Town Agency	N	16	Urban Minor Arterial	1931		69.3		292.5	N	45.6	Y	N	0	0
Bourne	B17006	4BJ	HWY SHORE RD	RR MACRR	01	State Highway Agency		16	Urban Minor Arterial	1923		58.4		117.8	N	82.5	Y	N	0	5.3
Bourne	B17010	4BH	HWY PERRY AVE	RR MACRR	01	State Highway Agency	N	19	Urban Local	1993		92.4		165.8	N	98.8	N	N	0	6.42
Bourne	B17017	B75	US 6 /ST28/CRNBRY	WATER COHASSET NARROWS	01	State Highway Agency		6	Rural Minor Arterial	2014		95.4		2365.7	Y	100	N	N	0	0
Bourne	B17019	45L	ST 28 BOURNE BR RD	US 6	01	State Highway Agency	Z	12	Freeway/Expressway	1985		64		778.2	Y	92.8	N	N	0	9.74
Bourne	B17025	4AF	HWY BOURNEDAL RD	ST 25	01	State Highway Agency	Z	17	Urban Collector	1987		85.8		768.8	N	96.3	N	N	0	5.1
Bourne	B17026	457	HWY BOURNE CR CN	ST 25	01	State Highway Agency	Z	16	Urban Minor Arterial	1985		86.3		1437.2	Y	83.1	N	N	0	5.02
Bourne	B17027	5YK	ST 3 NB	US 6	01	State Highway Agency		12	Freeway/Expressway	2006		79		516.8	Y	99.6	N	N	0	5.18
Bourne	B17027	B11	ST 3 SB	US 6	01	State Highway Agency		12	Freeway/Expressway	2006		97		487.1	Y	99.6	N	N	0	5.53
Brewster	B22002	4AQ	HWY FREEMANS WAY	US 6	01	State Highway Agency	Z	16	Urban Minor Arterial	1955		71.8		490.4	N	70	N	N	0	4.34
Chatham	C07001	9YM	HWY BRIDGE ST	WATER MITCHELL RIVER	03	Town Agency		17	Urban Collector	2016		79.2		683.1	N	85.2	N	N	0	0
Chatham	C07005	BNJ	ST 28 ORLEANS RD	WATER MUDDY CREEK	01	State Highway Agency		14	Urban Arterial	2016		96		368.9	Y	88.9	N	N	0	0
Dennis	D07001	BAH	HWY UPPER COUNTY	WATER SWAN POND RIVER	03	Town Agency		16	Urban Minor Arterial	2014		74.1		335.7	N	100	N	N	0	0
Dennis	D07002	41M	HWY LOWER COUNTY	WATER SWAN POND RIVER	03	Town Agency	Z	16	Urban Minor Arterial	1955		52.5		325	N	92.8	Y	N	0	0
Dennis	D07003	AV5	HWY LORING AVE	WATER WEIR CREEK	03	Town Agency		17	Urban Collector	1999		77.8		78.7	N	93.5	N	N	0	0
Dennis	D07004	47T	ST 28 MAIN ST	WATER BASS RIVER	01	State Highway Agency		14	Urban Arterial	1935		39.5	SD	2847.4	Y	64	N	N	0	0
Dennis	D07005	41L	HWY HIGHBANK RD	WATER BASS RIVER	03	Town Agency	Z	16	Urban Minor Arterial	1953		68		818.8	N	99.6	Y	N	0	0
Dennis	D07006	BBR	ST 28 MAIN ST	WATER SWAN POND RIVER	01	State Highway Agency		14	Urban Arterial	2014		97.6		476.2	Y	100	N	N	0	0
Dennis	D07009	49U	ST134	US 6 WB/MID CAPE HWY	01	State Highway Agency	Z	14	Urban Arterial	1955	2009	75.4		635	Y	97.3	N	N	0	4.57
Dennis	D07009	B1B	ST134	US 6 EB/MID CAPE HWY	01	State Highway Agency		14	Urban Arterial	1969	2009	76.5		667.8	Y	99.6	N	N	0	4.57
Dennis	D07010	46P	US 6 WB/MD CP HWY	WATER BASS RIVER	01	State Highway Agency	Z	12	Freeway/Expressway	1954		65.3		689.4	Y	86.2	N	N	0	0
Dennis	D07011	4AR	HWY OLD BSS R RD	US 6 MID CAPE HWY	01	State Highway Agency	A	16	Urban Minor Arterial	1954	1970	67.7		942.5	N	92.6	N	N	0	4.44
Dennis	D07012	46N	US 6 EB/MD CP HWY	WATER BASS RIVER	01	State Highway Agency	Z	12	Freeway/Expressway	1970		77.3		650.8	Y	86	N	N	0	0
Dennis	D07013	ACQ	HWY LIGHTHSE RD	WATER WEIR CREEK	03	Town Agency	?	17	Urban Collector	1995		77.6		105.6	N	99.7	N	N	0	0
Dennis	D07014	B76	HWY BRIDGE ST	WATER SESUIT CREEK	03	Town Agency		9	Rural Local	2008		80.6		90.3	N	100	N	N	0	0
Eastham	E04001	ADR	HWY BRIDGE RD	WATER BOAT MEADOW BROOK	03	Town Agency	?	16	Urban Minor Arterial	1999		94.1		228.1	N	100	N	N	0	0
Falmouth	F03001	47N	ST 28 WAQUOIT HWY	WATER CHILDS RIVER	01	State Highway Agency	N	14	Urban Arterial	1928		70.5		119.2	Y	56	N	N	0	0
Falmouth	F03002	41W	HWY MENAUHANT RD	WATER GREEN POND	03	Town Agency	N	16	Urban Minor Arterial	1995		78.4		1202.7	N	99.9	N	N	0	0
Falmouth	F03003	41V	HWY MENAUHANT RD	WATER GREAT POND RIVER	03	Town Agency	A	16	Urban Minor Arterial	1984		76.1		619.8	N	93.5	N	N	0	0
Falmouth	F03004	45M	HWY CRANE ST	OTHER STEAMSHP AUTH PKG	01	State Highway Agency	Z	19	Urban Local	1953		58.8		279.5	Y	87.6	N	N	0	4.59
Falmouth	F03005	43E	HWY WATER ST	WATER EEL POND	03	Town Agency	N	17	Urban Collector	1940	2009	73.6		207.4	N	96.7	N	N	0	0
Falmouth	F03006	41X	HWY MENAUHANT RD	WATER BOURNES POND	03	Town Agency	Z	16	Urban Minor Arterial	1985		62.2		154.8	N	71.5	N	N	0	0

Town Name	BDEPT	BIN	Over	Under	Owner Code	Owner	Hist. Code	FC Code	Functional Class	Year Built	Year Rebuilt	AASHTO	Deficiency	Bridge Area (sq.m.)	On NHS	Health Index	Posted	Closed	Clearance Over (m)	Clearance Under (m)
Falmouth	F03007	4BL	HWY PALMER AVE	RR BIKE PATH PREV RR	01	State Highway Agency	N	16	Urban Minor Arterial	1991		76.7		135.4	N	100	N	N	0	5.56
Falmouth	F03008	4BM	HWY PALMER AVE	OTHER BIKE PATH PREV RR	01	State Highway Agency	N	16	Urban Minor Arterial	1896	2016	51.1		100	N	74.3	Y	N	0	5.28
Falmouth	F03009	B1Y	HWY CHAPOQUOIT	WATER W FALMOUTH HARBOR	03	Town Agency		9	Rural Local	2012		80.4		535.3	N	100	N	N	0	0
Falmouth	F03010	43G	HWY NASHAWENA ST	WATER W FALMOUTH HARBOR	03	Town Agency	N	17	Urban Collector	1992		78.3		91	N	98.2	N	N	0	0
Falmouth	F03011	AEF	HWY QUAKER RD	WATER HERRING BROOK	03	Town Agency	?	17	Urban Collector	2000		81.3		512	N	99.8	N	N	0	0
Falmouth	F03012	4BN	HWY CURLEY BLVD	OTHER BIKE PATH PREV RR	01	State Highway Agency	A	19	Urban Local	1988		93		222.6	N	94.6	N	N	0	5.53
Falmouth	F03014	AN8	HWY CHURCH ST	COMB ACC RD & BIKEPATH	03	Town Agency		19	Urban Local	2002		74.7		204.1	N	100	N	N	0	6.83
Falmouth	F03016	47P	ST 28 E FALMTH HWY	WATER COONAMESSET RIVER	01	State Highway Agency	Z	14	Urban Arterial	1953		65.2		313	Y	95.3	Y	N	0	0
Falmouth	F03019	AXU	HWY MEADOWNCK RD	WATER MOONAKIS RIVER	03	Town Agency		19	Urban Local	2004		80.4		151.5	N	100	N	N	0	0
Falmouth	F03025	49H	ST 28 A/FALMTH HWY	RR MACRR (OTIS SPURR)	01	State Highway Agency		16	Urban Minor Arterial	1941		91.9		164.8	N	96.8	N	N	0	5.53
Falmouth	F03026	4BP	ST151 NATHAN ELLIS	RR MACRR (OTIS SPURR)	01	State Highway Agency		14	Urban Arterial	1941		64.6		457.6	Y	96	N	N	0	5.48
Falmouth	F03029	45N	ST 28 NB	HWY BRICK KILN RD	01	State Highway Agency	Z	12	Freeway/Expressway	1959		97.4		496.8	Y	76.8	N	N	0	4.67
Falmouth	F03029	45P	ST 28 SB	HWY BRICK KILN RD	01	State Highway Agency	Z	12	Freeway/Expressway	1959		85.9		496.8	Y	77.6	N	N	0	4.54
Falmouth	F03030	45Q	ST 28 NB	HWY THOMAS LANDERS RD	01	State Highway Agency	Z	12	Freeway/Expressway	1960		92.2		525.8	Y	96.1	N	N	0	4.49
Falmouth	F03030	45R	ST 28 SB	HWY THOMAS LANDERS RD	01	State Highway Agency	Z	12	Freeway/Expressway	1960		86.2		538.2	Y	96.1	N	N	0	4.49
Falmouth	F03031	45T	ST 28 NB	RR MACRR	01	State Highway Agency	Z	12	Freeway/Expressway	1960		81.6		350.7	Y	95.9	N	N	0	5.74
Falmouth	F03031	45U	ST 28 SB	RR MACRR	01	State Highway Agency	Z	12	Freeway/Expressway	1960		60.5		383.6	Y	94.9	N	N	0	5.84
Falmouth	F03032	45V	ST 28 NB	ST151 NATHAN ELLIS HWY	01	State Highway Agency	Z	12	Freeway/Expressway	1960		83.6		546.7	Y	79.6	N	N	0	4.54
Falmouth	F03032	45W	ST 28 SB	ST151 NATHAN ELLIS HWY	01	State Highway Agency	Z	12	Freeway/Expressway	1960		81.6		559	Y	79.3	N	N	0	4.72
Harwich	H10001	423	HWY LOWER COUNTY	WATER HERRING RIVER	03	Town Agency	N	16	Urban Minor Arterial	1930	2003	73		456.5	N	99.2	Y	N	0	0
Harwich	H10002	47Q	ST 28 MAIN ST	WATER HERRING RIVER	01	State Highway Agency	Z	14	Urban Arterial	1953		84.4		894.2	Y	80	N	N	0	0
Harwich	H10003	424	HWY LOWER COUNTY	WATER DOANES CREEK	03	Town Agency	Z	16	Urban Minor Arterial	1955		61.2		245.7	N	95.1	N	N	0	0
Harwich	H10011	43Q	HWY BELLS NCK RD	WATER HERRING RIVER	03	Town Agency	Z	19	Urban Local	1986		79.9		136.8	N	99.4	N	N	0	0
Harwich	H10013	49V	ST124 PLSNT LK AVE	US 6 MID CAPE HWY	01	State Highway Agency	Z	14	Urban Arterial	1955		61.6		646.4	Y	89.3	Y	N	0	4.31
Harwich	H10014	4A9	ST137 LONG POND RD	US 6 MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1955		51.7		633.6	Y	94.7	N	N	0	4.31
Harwich	H10016	46T	US 6 MID CAPE HWY	HWY DEPOT ST	01	State Highway Agency	N	12	Freeway/Expressway	1955	2003	82		487.5	Y	96.4	N	N	0	4.36
Harwich	H10019	43P	HWY AZALEA DR	WATER HERRING RIVER	03	Town Agency	Z	9	Rural Local	1974		67		92.1	N	92	N	N	0	0
Orleans	O04001	47R	ST 28 S ORLEANS RD	WATER SALT MARSH CREEK	01	State Highway Agency	Z	14	Urban Arterial	1954		94.9		247.8	Y	98.7	N	N	0	0
Orleans	O04003	46V	US 6 MID CAPE HWY	ST 6 A/CRANBERRY HWY	01	State Highway Agency	R	12	Freeway/Expressway	1957	1987	74.5		829.4	Y	58.4	N	N	0	5
Orleans	O04004	4B1	HWY WEST RD	US 6 MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1958	1986	84.1		607.6	N	99.2	N	N	0	4.52
Orleans	O04005	49W	HWY ROCK HRBR RD	US 6 MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1958	1987	94.5		654.2	N	94	N	N	0	4.54
Sandwich	S04001	4A4	ST 6 A/CRNBRY HWY	WATER SCORTON RIVER	01	State Highway Agency	N	16	Urban Minor Arterial	1926		57.1	SD	217.4	N	74.5	N	N	0	0
Sandwich	S04002	4C2	HWY OLD CNTY RD	RR MACRR	01	State Highway Agency	P	16	Urban Minor Arterial	1890	1995	72.7		69.6	N	100	N	N	0	5.58
Sandwich	S04003	4A5	ST 6 A/CRNBRY HWY	WATER MILL CREEK	01	State Highway Agency	Z	16	Urban Minor Arterial	1951		95.6		304.3	N	100	N	N	0	0
Sandwich	S04006	470	US 6 WB/MD CP HWY	ST130 SANDWICH RD	01	State Highway Agency	C	16	Urban Minor Arterial	1950		79		279.7	Y	99.1	N	N	0	4.54
Sandwich	S04007	4BB	HWY QUKR MTNG HS	US 6 WB MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1950		70.7		226.2	N	97.2	N	N	0	4.19
Sandwich	S04008	4BA	HWY CHASE RD	US 6 WB MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1950		71.9		207	N	99.4	N	N	0	4.49
Sandwich	S04009	471	US 6 EB/MD CP HWY	ST130 SANDWICH RD	01	State Highway Agency	C	12	Freeway/Expressway	1953		76		281	Y	97.5	N	N	0	4.92
Sandwich	S04010	4BC	HWY QUKR MTNG HS	US 6 EB MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1953		76		236.8	N	98.7	N	N	0	5.08
Sandwich	S04011	4B9	HWY CHASE RD	US 6 EB MID CAPE HWY	01	State Highway Agency	Z	16	Urban Minor Arterial	1953		70.9		207	N	100	N	N	0	4.29
Truro	T08003	472	US 6 MID CAPE HWY	HWY S PAMET RD	01	State Highway Agency	N	2	Rural Arterial	1951		84.5		623.7	Y	89.5	N	N	0	4.36
Truro	T08004	473	US 6 MID CAPE HWY	HWY HIGHLAND RD	01	State Highway Agency	N	2	Rural Arterial	1953		74.2		858.8	Y	92.9	N	N	0	4.47
Wellfleet	W14006	44A	HWY LT ISLAND RD	WATER LOAGY BAY	03	Town Agency		9	Rural Local	1920	2005	52.2		144	N	95.7	Y	N	0	0
Wellfleet	W14007	44B	HWY CHEQUSST NCK	WATER HERRING RIVER	03	Town Agency	Z	9	Rural Local	1973		90.3		40.9	N	97	N	N	0	0
Wellfleet	W14008	4BE	HWY LNG PND RD	US 6 MID CAPE HWY	01	State Highway Agency	N	8	Minor Collector	1949		72.3		515.3	N	91.2	Y	N	0	4.31
Yarmouth	Y01005	474	US 6 WB/MD CP HWY	COMB WILLOW ST & MACRR	01	State Highway Agency	Z	16	Urban Minor Arterial	1953	1997	64.6		809.7	Y	94	N	N	0	4.41
Yarmouth	Y01005	475	US 6 EB/MD CP HWY	COMB WILLOW ST & MACRR	01	State Highway Agency	Z	12	Freeway/Expressway	1966	1997	88.4		893.2	Y	96.1	N	N	0	4.52
Yarmouth	Y01006	47A	US 6 WB/MD CP HWY	HWY UNION ST	01	State Highway Agency	Z	12	Freeway/Expressway	1954		58.9		290	Y	90.6	N	N	0	4.52
Yarmouth	Y01007	4BF	HWY N MAIN ST	US 6 MID CAPE HWY	01	State Highway Agency	R	16	Urban Minor Arterial	1954	1970	49		896.4	N	88	N	N	0	4.36

Town Name	BDEPT	BIN	Over	Under	Owner Code	Owner	Hist. Code	FC Code	Functional Class	Year Built	Year Rebuilt	AASHTO	Deficiency	Bridge Area (sq.m.)	On NHS	Health Index	Posted	Closed	Clearance Over (m)	Clearance Under (m)
Yarmouth	Y01012	47B	US 6 EB/MD CP HWY	HWY UNION ST	01	State Highway Agency	Z	12	Freeway/Expressway	1970		41.6		308.9	Y	77.1	N	N	0	4.46
Yarmouth	Y01013	478	US 6 EB/MD CP HWY	RR MACRR	01	State Highway Agency	Z	12	Freeway/Expressway	1970		84.1		266.5	Y	90.9	N	N	0	5.66
Yarmouth	Y01014	479	US 6 WB/MD CP HWY	RR MACRR	01	State Highway Agency	Z	12	Freeway/Expressway	1971		85.8		380.9	Y	95.4	N	N	0	5.82
Yarmouth	Y01015	477	HWY W YARMTH RD	US 6 EB/MID CAPE HWY	01	State Highway Agency	R	16	Urban Minor Arterial	1969		95.9		390.5	N	84.7	N	N	0	4.67
Yarmouth	Y01016	476	HWY W YARMTH RD	US 6 WB/MID CAPE HWY	01	State Highway Agency	R	16	Urban Minor Arterial	1969		96.3		391.6	N	54.1	N	N	0	4.47

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CAPE COD
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix Q: Public Comments

JULY 15, 2019

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Technical Appendix Q: Public Comments

The Public Comment Summary Grid presents a summary of the comments received during the 21-day public comment period. Comments received in advance of the public comment period were used to inform the development of the plan and are also included in the Public Comment Summary Grid. These 540 comments, as well as input from the survey (see Appendix O), were key in the development of this plan.

The comments were presented in their entirety to the Cape Cod Metropolitan Planning Organization (MPO) at their July 15, 2019 public meeting. The consideration of and response to these comments is documented in the Public Comment Summary Grid on the following pages. The public comments are included in their entirety in this Appendix after the Public Comment Summary Grid.

#	Date Received/ Format	Comment From	Summary of Comment	TIP	UPWP	RTP	Potential Response/Action for Consideration
Public comments received during FFY2020-2024 TIP and FFY2020 UPWP public comment period (April 17, 2019 to May 13, 2019)							
1	5/6/2019 Letter via email	MassDOT Office of Transportation Planning, David Mohler	General Update document to ensure document accessibility Narrative Update FTA contact Update date references Add quantitate threshold to TIP amendment vs adjustment Update funding sources table Review glossary and update as appropriate Update GHG and state policy discussion per current guidance Add O&M charts Highway Project Listing Update project ID for project 609393 Update additional information as needed GHG Assessment Add additional GHG assessment information to highway projects as available Add additional GHG information for bus replacements	X			**TIP Action**: Updates to the document have been made to ensure accessibility. **TIP Action:** Update Narrative as suggested. Staff will add O&M Charts as suggested when available. **TIP Action:** Update Highway Project Listing as suggested. and as requested. **TIP Action:** Add GHG information for projects 609067, 607398, and 608422. Staff will add bus replacement GHG analysis when available.
2	5/6/2019 Letter via email	MassDOT Office of Transportation Planning, David Mohler	General Update document to ensure document accessibility and readability Narrative Update FTA contact Update date references Add community totals to Table 3 Add discussion of social equity Update funding summary to reflect the MassDOT match for section 5303 funds (as opposed to a local match) Task Listing Task 1.5 - Clarify deliverable Task 1.6 - Update reference to Cape Cod Canal Area Transportation Studies Task 2.2 - Incorporate additional information of FTA performance measures Task 3.1 - Update numbering		X		**UPWP Action**: Updates to the document have been made to ensure accessibility. **UPWP Action:** Update Narrative as suggested. Add community totals to Table 3, additional social equity discussion, and update the funding summary are requested. **TIP Action:** Update Task Listing to provide the suggested clarifications.
3-115	5/6/2019- 5/13/209 via email	Various - see attached comments	113 emails noting support for the Bourne Rail Trail Phase I project and its inclusion in the FFY2020-24 TIP during the public comment period. Most emails also noted support of the Bourne Bicycle Transportation Plan in the FFY2020 UPWP.	X	X	X	Thank you for your comment. The Bourne Rail Trail Phase I project is proposed to be funded in FFY2024 of the FFY2020-24 TIP. The Bourne Bicycle Transportation Plan is proposed to be funding in the FFY2020 UPWP.
116	5/13/2019 Bike Week Event - Bourne Cape Cod Canal Bike Path	Anonymous	Happy to see more buses down his street (Clay Pond Rd) & excited about Bourne Rail Trail project.		X	X	Thank you for your comment. The Bourne Rail Trail Phase I project is proposed to be funded in FFY2024 of the FFY2020-24 TIP.
117		Barb Hardy	- Less cars more trains to help mother nature - Never can afford a good car (single), Cape its hard/expensive to live here. Worried about how to get around w/O a car - Need more education on bike path etiquette - use bell/audible signal for passing - canal path (safety issue)			X	Thank you for your comment. This comment will be shared will be considered as part of the RTP development and review process.

#	Date Received/ Format	Comment From	Summary of Comment	TIP	UPWP	RTP	Potential Response/Action for Consideration
Public comments received between May 14, 2019 and May 17, 2019							
118	5/14/2019 via email	Daniel J. Fortier, Town Planner, Town of Dennis	Offers support for the inclusion of the Dennis Route 134 Corridor Study in the UPWP. Notes potential for transportation improvements on the corridor to support economic development/zoning efforts the towns in pursuing in the area.		X		Thank you for your comments. MPO staff is looking forward to working with all stakeholders in the Town on this corridor study.
119	5/14/2019 Bike Week Events - Hyannis Transportation Center	Anonymous	Not enough bus service from Provincetown to Hyannis			X	Thank you for the comments. **Action:** Share comments with the CCRTA.
120			The 5:30pm Woods Hole bus often runs behind schedule			X	
121			The CCRTA seasons change too late			X	
122			I like the EV charging station at the CCRTA - I use it all the time			X	
123			I like the solar powered canopies for the new bus bays			X	
124		Bourne Resident	Organize bicycle repair & maintenance instructions in schools & communities			X	Thank you for the comment.
125	5/15/2019 via email	Matt & Siobhan Dennehy	Support for the Bourne Rail Trail Phase I project and its inclusion in the FFY2020-24 TIP.	X	X	X	Thank you for your comment. The Bourne Rail Trail Phase I project is proposed to be funded in FFY2024 of the FFY2020-24 TIP.
126	5/15/2019 via email	Michael E. Garrity		X	X	X	
127	5/15/2019 Bike Week Events - Yarmouth Cape Cod Rail Trail at Station Avenue	Anonymous	The expanded RTA service is incredible/awesome. Great you can get to P-town from Woods Hole.			X	Thank you for the comments. **Action**: Share comment with relevant agencies (CCRTA; MassDOT; towns)
128			Lots of people use the rail trails to get to work - not just recreation.			X	
129			Pedego [e-bike rental shop]- adjacent to the rail trail is very helpful			X	
130			More train service off Cape -> Cape Flyer is great, need more			X	
131			Bike trail extension is terrific (Yarmouth), bridges are beautiful			X	
132			love the rail trails - use it 4-5 times a week to run			X	
133		Owner of Pedego [e-bike rental shop]	I appreciate the work you are doing for rail trails			X	
134		Anonymous	Is there a program/funding source to give out helmets to people? Not enough people wear them.			X	
135			Sidewalks on all part of Rte 6A			X	
136	5/16/2019	Rick Branson	- Would like a Woods Hole - Provincetown bike Path.			X	
137	Bike Week Events - Orleans Cape Cod Rail Trail at Main Street	Oliver Roecraft	Need more bike lanes in Brewster for example. Not just the rail trail - need to make streets more friendly for bicycling.			X	
138		Kevin Linneham	Route 6A sidewalk crossing at JoMama's - can't cross 6A - need sidewalks on both sides			X	
139		Visitor	I love bike trails			X	
140		Visitor	Love riding the bike trails			X	
Public comments received between May 18, 2019 and June 16, 2019							
141	5/22/2019 MassDOT CIP Outreach Event - RTP Outreach Table - Falmouth Library	Pat Johnson	Look into modular sections for rail trail - quick and low cost solution over the top of the tracks.			X	Thank you for the comment.
142			What is happening on the Falmouth line? [Trail work referenced in the CIP presentation]				**Action:** Refer question to MassDOT.
143		Anonymous	Falmouth Service Center - Need expanded service for their customers who have to walk miles to their store and don't have a car. Need sidewalk improvements as well.			X	Thank you for the comments.
144		Paul Silva	1. Multiuse path from Woods Hole to Provincetown. 2. Local connector multi-use paths and shared roads.			X	Thank you for the comments.
145	5/22/2019 MassDOT CIP	John Carrol	RE: Falmouth Secondary Rail. We have been saving this for the future. The future is now. Rail to Trail.			X	Thank you for the comments.

#	Date Received/ Format	Comment From	Summary of Comment	TIP	UPWP	RTP	Potential Response/Action for Consideration
146	Outreach Event - RTP Outreach Table - Falmouth Library (cont.)	Anonymous	Preserve Cape Cod. Green Energy Get people involved more, new thinking, narrow roads, slow traffic, more sidewalks, more roundabouts.			X	Thank you for the comments.
147	Regional Transportation Plan Public Meetings 6/3/2019 - Provincetown Veteran Memorial Community Center 6/5/2019 - Hyannis Transportation Center 6/5/2019 - Sandwich Town Hall	Various	The RTP needs to focus more on access to the Outer Cape.			X	Thank you for the comments. Clarifications were provided to the direct questions. Updates where made to the draft RTP to reflect the comments made. **Action**: Share comments with relevant agencies (CCRTA; MassDOT; towns)
148			The public outreach process for TIP projects should be discussed.			X	
149			The needs of all users should be a priority.			X	
150			The unique challenges of the Outer Cape should be highlighted relative to access to health care			X	
151			Community health needs should be captured in the plan.			X	
152			Does the RTP include the new canal bridges as projects?			X	
153			Any consideration of MassDOT taking over new replacement bridges from ACOE?			X	
154			New Route 25 ramp was in original Route 25 design and is needed more than ever. (Tom Cahir)			X	
155			Exit 1C is a critical change (Tom)			X	
156			The RTP Performance measures seem too structural and not related to access issues within the region (i.e. Outer Cape to Hospital)			X	
157			Would like to see sub regional focus possibly			X	
158			Strongly supports prioritizing funds for transit improvements, especially for the rural communities. Would like to see a focus group with stakeholders to talk about efforts to improve access/reduce congestion from Outer Cape to hospital			X	
159			Suggest a service road alternative to Route 25 from Scenic Hwy			X	
160			Suggest continued coordination with abutting towns of Bourne and Sandwich with proposed Canal Alt 3A improvements as region wants to see implemented as a whole.			X	
161			Does the RTP identify projects other than rail trails for improved bicycle on-road facilities?			X	
162			Strongly support safety improvements for Route 6 (Mid-Cape Hwy) at interchanges			X	
163			Is the $1 billion RTP funding exclusive of the MassDOT CIP?			X	
164			What is timeline to spend the $1 billion funds over the next 20 years and what does it include for funding programs?			X	
165			The RTP shows 20% of funds dedicated to bridges, however that number seems small to actually fix that many bridges.			X	
166			Explain where funding for the Canal bridges will come from and timeline on when they will be fixed.			X	
167			Was there any induced demand assumed in the MassDOT Canal study with the assumption of wider bridges?			X	
168			Did the MassDOT Canal study consider making portions of Route 6 wider (i.e. additional lanes) to match the wider replacement bridges?			X	
169			The RTP may need to consider new technologies such as droids delivering Amazon packages as how goods are delivered in the future.			X	
170			How does the RTP consider climate change?			X	
171			How much of this version of the RTP is new vs revised from previous versions?			X	
Public comments received during 2020 RTP public comment period (June 17, 2019 to July 8, 2019)							
172	6/24/2019 Email	Jamie Veara, Vice President & Senior Business Advisor, The Davenport Companies	Bourne and Sagamore Bridge need to be replaced. Supports inclusion of Cape Cod Canal infrastructure that would support bridge replacement. Asks Commission to urge the Army Corps to replace the Bourne and Sagamore Bridges.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.

#	Date Received/ Format	Comment From	Summary of Comment	TIP	UPWP	RTP	Potential Response/Action for Consideration
173	6/24/2019 Letter via Email	The Davenport Companies from Matt Pitta, Director of Communications And Marketing Specialist	Notes importance of Bourne and Sagamore Bridges to their 1,300 employees as well as their visitors and vendors. Supports efforts to replace the Bourne and Sagamore Bridges. Supports MassDOT's efforts to address infrastructure approaching the bridges through the their CIP and the Cape Cod RTP. Urges MassDOT to continue work with Army Corps on bridge replacement.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
174	6/24/2019 Email	Ann Millett, CFO, The Davenport Companies	Notes importance of Bourne and Sagamore Bridges to residents of Cape Cod and to the region's economy. Supports investments in infrastructure that would go along with replacement of the bridges. Urges MassDOT to continue work with Army Corps on bridge replacement.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
175	6/24/2019 Email	Marie Oliva, President & CEO, Cape Cod Canal Region Chamber	The Cape Cod Canal Region Chamber supports the inclusion of the Canal Area Transportation Plan study implementation by MassDOT in the Regional Transportation Plan. Notes impact of bridge maintenance activities. Notes importance of bridges to evacuation.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
176	6/24/2019 In person	Jeff Bilezikian	Concerned with proposed changes to the Sagamore Bridge approach and the lack of notice to abutters. Concerned with economic impact, job impacts, and tax and fee collection impacts of Exit 1C relocation. Wishes to be notified of upcoming MPO meetings.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers. **Action:** Add Mr. Bilezikian to the MPO email list.
177	6/24/2019 Phone	Kim Fullman	Thinks that charging tolls to on the Bourne and Sagamore Bridges would be an equitable way to fund improvements to the bridges - those who use the bridges pay for them.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers. **Action:** Add Ms. Fullman to the MPO email list.
178	6/26/2019 In person	Greg Bilezikian	Concerned with impacts relocating Exit 1C, specially the impacts on nearby business and all business on Cranberry Highway. Interested in traffic data collected in the area. Wishes to be part of the planning process for changes in the Sagamore Bridge are notified of upcoming MPO meetings.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers. **Action:** Add Mr. Bilezikian to the MPO email list.
179	6/27/2019 In person	Gordon Starr	Interested in electric vehicle charging infrastructure. Would like to see more done to help/encourage towns to add charging stations where needed.		X	X	Thank you for the comment. Note an electric vehicle charging station siting analysis is included in the FFY2020 UPWP.

#	Date Received/ Format	Comment From	Summary of Comment	TIP	UPWP	RTP	Potential Response/Action for Consideration
180-359	6/24/2019-7/8/2019 Email	Various - see attached comments	180 emails with the following message: I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod. Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
360	7/2/2019 Email	Anne Scott-Putney, President & CEO, Heritage Museums & Gardens	Notes importance of Bourne and Sagamore Bridges to their 70 employees as well as residents of and visitors to the region. Notes the bridges are key to getting staff and visitors to their business in Sandwich. Encourages investment for reliable, modern transportation system.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
361	7/2/2019 Letter via Email	FIX Coalition	The Big Fix Coalition made up of multiple businesses, non-profit organizations, chambers, and legislators support the inclusion of the Canal Area Transportation Plan study implementation by MassDOT in the Regional Transportation Plan. On 8,390 employer establishments and 214,333 year round residents would like to see replacement of the Bourne and Sagamore Bridges.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
362	7/2/2019 Mail	Turtle Rock LLC, Jeffry D. and Gregory C. Bilezikian, Owners	Owners and operators of the Christmas Tree Shops building and several abutting properties (map included in comment letter) concerned with economic impact of moving Exit 1C. Notes anticipated negative impact on their business and others in the area. Plans to conduct, and eventually submit, a traffic study documenting the business impact of moving Exit 1C.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
363	7/3/2019 Email	Lisa Oliver, President and CEO, Cape Cod Cooperative Bank	Notes importance of Bourne and Sagamore Bridges to their over 170 employees - suggests replacement of the bridges is needed. Notes impact of bridge lane drops and commuters to the region. Supports investments in safe infrastructure for bicyclists and pedestrians.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
364-539	6/30/2019 Comment Cards from Revival Presbyterian Church of Cape Cod (predominately Portuguese speakers)	Various - see attached comment cards (translation of written comments was added)	In responding to questions about what was important, respondents noted the importance of the Cape Cod Can Bridges, roads that are safe for all users, bus service, sidewalks, and a transportation system the enhances the environment. Additional written comments included notes on the importance of the Cape Cod Canal bridges as well as a desire for more bicycle paths in Hyannis, more public transit, transportation to church, more street lights, safe bicycle facilities, more sidewalks. Thanks for being included in the process.			X	Thank you for the comment **Action:** Share comments with relevant agencies (CCRTA; MassDOT; towns)

#	Date Received/ Format	Comment From	Summary of Comment	TIP	UPWP	RTP	Potential Response/Action for Consideration
Public comments received between July 9, 2019 and July 15, 2019							
540	6/11/2019 Letter via email with follow-up email on July 12, 2019	MassDOT Office of Transportation Planning, David Mohler	Formatting Update document to ensure document accessibility. Make Tables fit on a single page. Address legibility issues with a few of the figures. Add additional references between sections of the document. Suggestions/Clarifications Add additional discussion (as possible) on funding prioritization; describing the tie between strategies, goals, and objectives, ferry congestion, freight, baseline performance measure assessments, intercity buses, emissions cap and invest, and other topics as detailed in the letter. Add clarification on the Cape Cod MPO's approach to reducing congestion impacts at the Case Cod Canal bridges. GHG Information Incorporate new GHG information provided by MassDOT and update references as appropriate. Cape Cod Canal Project Listings Adjust the listing of Cape Cod Canal projects show in Table 19 based on guidance provided via email.			X	**RTP Action**: Update formatting as requested. **RTP Action:** Adjust text, where feasible, in response to suggestions/clarifications. **RTP Action:** Incorporate new GHG information provided by MassDOT and update references as appropriate. **RTP Action:** Adjust the listing of Cape Cod Canal projects show in Table 19 based on guidance provided via email.
Public testimony provided at the July 15, 2019 MPO meeting							
541	7/15/2019 At MPO meeting	Sheila Miller, Owner, Canal Bait and Tackle	Concerned with impacts of relocating Exit 1C to the village of Sagamore, specifically the impacts on her business and adjacent businesses on Cranberry Highway. Was unaware of these meetings and the RTP process and would like to be notified of upcoming Canal Area related meetings. Suggests more public transportation options to get over the bridges and stated concerns with a bike path on the potential replacement bridges.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
542	7/15/2019 At MPO meeting	Tammy Hanny, Bourne Resident	Concerned with impacts with potential Exit 1C relocation for residents who live on Route 6A in Bourne with increased traffic, more congestion and negative impacts to the area home values. Suggests additional alternatives be investigated.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
543	7/15/2019 At MPO meeting	Jeff Bilezikian, Turtle Rock LLC	Concerned with impacts relocating Exit 1C, specifically the impacts on nearby business and all business on Cranberry Highway. Wishes to be part of the planning process for changes in the Sagamore Bridge and notified of upcoming project related meetings.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
544	7/15/2019 At MPO meeting	Bert Talerman, Cape Cod Five, Cape Cod Chamber of Commerce Board Chairman	Supports MassDOT efforts to work collaboratively for improvements to the Canal Area. Emphasized the economic necessity for bridge replacements and importance to have a modern transportation system for the entire region.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
545	7/15/2019 At MPO meeting	Wendy Northcross, CEO, Cape Cod Chamber of Commerce	Supports the inclusion of MassDOT Canal Area study recommendations in the RTP and thanks MassDOT for their responsiveness and attention to improving the regional roadway system. Notes impact of bridge maintenance activities and importance of bridges to evacuation. Also notes support to improvements for all modes of transportation in the Cape Cod RTP.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.
546	7/15/2019 At MPO meeting	Marie Oliva, President & CEO, Cape Cod Canal Region Chamber	The Cape Cod Canal Region Chamber supports the inclusion of the Canal Area Transportation Plan study implementation by MassDOT in the Regional Transportation Plan. Notes impact of bridge maintenance activities. Notes importance of bridges to evacuation.			X	Thank you for the comment. **Action:** Share these comments with MassDOT and the Army Corps of Engineers.

Acronyms: ACOE = Army Corps of Engineers; CCC = Cape Cod Commission; CCRTA = Cape Cod Regional Transit Authority; FFY = Federal Fiscal Year; GHG = Greenhouse gas; MassDOT = Massachusetts Department of Transportation; MPO = Metropolitan Planning Organization; RTP = Regional Transportation Plan; TIP = Transportation Improvement Program; UPWP = Unified Planning Work Program

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, MassDOT Secretary & CEO

massDOT
Massachusetts Department of Transportation

May 6, 2019

Steven Tupper, Transportation Program Manager
Cape Cod Commission
P.O. Box 226
3225 Main Street
Barnstable, MA 02630

Dear Mr. Tupper:

The Massachusetts Department of Transportation (MassDOT) Office of Transportation Planning (OTP) has reviewed the draft Federal Fiscal Year (FFY) 2020–2024 Transportation Improvement Program (TIP) released by the Cape Cod Metropolitan Planning Organization (MPO) on April 24, 2019. The following MassDOT comments include both general guidance and specific comments on the MPO's 3C planning process related to the content of this document as released for public review.

Please note the following comments specific to the information contained in the MPO's draft FFY 2020–2024 TIP.

General

- Please provide alternative text (alt text) for all graphics and charts within the document for improved accessibility.
- Please map a logical tab / reading order within the document for digital screen readers.
- Please ensure all hyperlinks to external sources (emails, web addresses, *etc.*) are styled as hyperlinks and are active links.
- Please insert all appropriate signature pages and ensure they have the correct signatories.
- Please review the use of acronyms to ensure full spellings are not redundant and are in the proper sequence, as feasible.

Narrative

- Page i: Please change the Federal Transit Administration (FTA) Ex-Officio member to Acting Administrator Peter Butler.
- Page v: Please update the Cape Cod Regional Transit Authority (CCRTA) projects description to 2020–2024.
- Page vi: Please link the Table of Contents to the contents of the document.

Ten Park Plaza, Suite 4160, Boston, MA 02116
Tel: 857-368-4636, TTY: 857-368-0655
www.mass.gov/massdot

- Page 3: Please ensure the link to the Public Participation Plan (PPP) is active.
- Page 10: Please ensure the link to Tracker is active.
- Page 18: Please outline the quantitative threshold for a TIP amendment versus an adjustment.
- Page 19: Please amend the first sentence of the second-to-last paragraph.
- Page 20: Please update the list of federal funding sources to include the National Highway Freight Program (NFP) and the Ferry Boat Program (FBP).
- Page 22: Please update Tables 11 and 12 to reflect 2020–2024.
- Page 23: Please ensure the hyperlink to the TIP website is visible.
- Glossary: Please update the glossary to remove outdated state agencies and to include updated agency names and acronyms.
- Appendix A: Please relate project evaluation to adopted performance measures.
- Appendix C: Please update references from 2019–2023 to 2020–2024.
- Appendix C: Please replace the text under the State Policy Context section with the text found in the 2019–2023 STIP document.
- Appendix C: Please remove the GreenDOT Policy section.
- Appendix C: Please remove the GreenDOT Policy and MPOs section.
- Appendix F: Please include Operation and Maintenance Charts.

Highway Project Listing

General

- Please ensure all project rows are tall enough to include the full MassDOT Project Descriptions.

FFY 2020

- TBD: Please update project ID to 609393.

FFY 2022

- 607319: Please update the AC Year in the Additional Information column.

FFY 2024

- 608744: Please update Additional Information to include Phase I.
- Summary: Please update year to 2024.

Greenhouse Gas (GHG) Assessment

- Please include any bus replacements or new service provisions in the transit sections.

FFY 2021
- Please quantify project 609067.

FFY 2022
- Please quantify project 607398.
- Please quantify project 608422.

FFY 2024
- Please update the GHG Tracking Summary to 2024

Please contact me at (857) 368-8865 or Benjamin Muller at (857) 368-8882 if you have any questions.

Sincerely,

David Mohler
Executive Director
Office of Transportation Planning

Cc: Jeffrey McEwen, Division Administrator, Federal Highway Administration
Peter Butler, Acting Regional Administrator, Federal Transit Administration
Mary-Joe Perry, District 5 Highway Director
Astrid Glynn, Rail and Transit Division Administrator

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, MassDOT Secretary & CEO

massDOT
Massachusetts Department of Transportation

May 6, 2019

Steven Tupper, Transportation Program Manager
Cape Cod Commission
P.O. Box 226
3225 Main Street
Barnstable, MA 02630

Dear Mr. Tupper:

The Massachusetts Department of Transportation (MassDOT) Office of Transportation Planning (OTP) has reviewed the draft Federal Fiscal Year (FFY) 2020 Unified Planning Work Program (UPWP) released by the Cape Cod Metropolitan Planning Organization (MPO) on April 24, 2019. The following MassDOT comments include both general guidance and specific comments on the MPO's 3C planning process related to the content of this document as released for public review.

Please note the following comments specific to the information contained in the MPO's draft FFY 2020 UPWP.

General

- Please provide alternative text (alt text) for all graphics and charts within the document for improved accessibility.
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- Please include bookmarks for internal navigation in the digital document.
- Please ensure all hyperlinks to external sources (emails, web addresses, *etc.*) are styled as hyperlinks and are active links.
- Please insert all appropriate signature pages and ensure they have the correct signatories.
- Please review the use of acronyms to ensure full spellings are not redundant and are in the proper sequence, as feasible.
- Please review and amend any minor spelling errors as noted.

Narrative

- Page i: Please change the Federal Transit Administration (FTA) Ex-Officio member to Acting Administrator Peter Butler.
- Page v: Please update the FFY 2020 Tasks list with the associated funding level for each task.
- Page 1: Please update the twelve-month period to October 2019 to September 2020.
- Page 2: Please edit the paragraph relating to Appendices to be cohesive with adjacent paragraphs.

- Page 50: Please incorporate a total for each individual municipality into Table 3.
- Pages 51–52: Please incorporate a narrative description of the distribution of UPWP efforts in relation to social equity.
- Appendix E: Please note that MassDOT will provide the match for the Section 5303 funds for FFY 2020.

Task Listing

Task 1

- Task 1.5: Please clarify whether there will be a formal work product regarding evaluation of the Public Participation Plan (PPP).
- Task 1.6: Please clarify reference to the Cape Cod Canal Area Transportation Studies. In addition, please ensure all procedures are appropriately bulleted.

Task 2

- Task 2.2: Please incorporate any relevant information and activities regarding FTA-required transit performance measures.

Task 3

- Task 3.1: Please renumber the subtasks within this task.

Please contact me at (857) 368-8865 or Benjamin Muller at (857) 368-8882 if you have any questions.

Sincerely,

David Mohler
Executive Director
Office of Transportation Planning

Cc: Jeffrey McEwen, Division Administrator, Federal Highway Administration
Peter Butler, Acting Regional Administrator, Federal Transit Administration
Mary-Joe Perry, District 5 Highway Director
Astrid Glynn, Rail and Transit Division Administrator

Comment 3
From: Betsy Woodley <betsy.woodley95@gmail.com>
Sent: Monday, May 6, 2019 11:41 AM
To: Steven Tupper
Subject: Bourne Rail Trail
Mr. Tupper
As a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program. I would also ask you to support the Bourne Bicycle Transportation Plan under the Unified Planning Work Program in the 2020 UPWP Potential Project List.
Thank you,
Betsy Woodley
Pocasset, MA
Betsy Woodley
Betsy.woodley95@gmail.com <mailto:Betsy.woodley95@gmail.com>
H: 508.392.9256
C: 617.480.2789

Comment 4
From: Kim <rosemonde603@gmail.com>
Sent: Monday, May 6, 2019 11:48 AM
To: Steven Tupper
Subject: Rail trail
I support the Rail Trail project please include my name on that list.
Marie Kim Kane
405 Barlow's Landing Rd
Pocasset, MA
Sent from my iPad

Comment 5
From: MARY HAYES <mlhayes2@verizon.net>
Sent: Monday, May 6, 2019 12:01 PM
To: Steven Tupper
Subject: Bourne Rail Trail Project
Please support the Bourne Rail Trail Project. People need safe places to ride their bikes. Thanks

Comment 6
From: marlafu@aol.com
Sent: Monday, May 6, 2019 12:02 PM
To: Steven Tupper
Subject: Bourne Rail Trail
Mr. Steven Tupper,
As a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program.
Thank you,
M. Cole

Comment 7
From: Anne Kirschmann <annekir@comcast.net>
Sent: Monday, May 6, 2019 12:19 PM

To: Steven Tupper
Subject: Bourne Rail Trail
Dear Mr. Tupper,
I am writing to urge you to support the Bourne Rail Trail Phase I project. As a cyclist, walker, and sometime roller blader, I can speak of the importance of trails such as this to the public. Although our car culture will continue to dominate our public roadways, cycling is increasingly used by folks not just for recreation (which is important in and of itself) but to do errands and to travel to and from places of employment. Please support this worthwhile project.
Anne Kirschmann
Marion, MA

Comment 8
From: jzahlaway <jzahlaway@comcast.net>
Sent: Monday, May 6, 2019 12:31 PM
To: Steven Tupper
Subject: As a long time summer resident of Pocasset I am in support of the TIPP project 2024 phase 1 rail improvement fkr a number of resons. The Pocasset & area train stops were used by many as a means of travel to and from Boston
With the always growing appeal and subent traffic. Train transportation has to be an essential part of solving our traffic situation. Thumbs up for this project.
John Michael Zahlaway
Sent from my T-Mobile 4G LTE Device

Comment 9
From: Susan Holcombe <shholc@brandeis.edu>
Sent: Monday, May 6, 2019 12:38 PM
To: Steven Tupper
Subject: Bourne Rail Trail
Dear Mr. Tupper,
We have a seasonal house in Pocasset MA. We urge you to keep the Bourne Rail Trail on the Transportation Improvement List for 2024. Construction of such an addition to the existing rail trail will benefit residents, seasonal visitors and the tourism industry. Extension of the bike path from its current terminus to the canal will be an asset to Cape Cod and a demonstration of the forward thinking of the Commission.
Yours sincerely,
Susan Holcombe
663 Green Street
Cambridge MA 02139

Comment 10
From: Peggy McCarthy <peggyemccarthy@gmail.com>
Sent: Monday, May 6, 2019 12:56 PM
To: Steven Tupper
Subject: BOURNE RAIL TRAIL
Mr. Tupper,
As a Friend of the Bourne Rail Trail project, I ask that you support the Rail Trail (Phase 1) under the 2024 Highway projects part of the Transportation Improvement Program. This project would be a valuable asset to our community.
Thank You,

Peggy McCarthy

Comment 11
From: Mary McNiff <mcniff151@comcast.net>
Sent: Monday, May 6, 2019 12:57 PM
To: Steven Tupper
Subject: Rail Trail
Please add my name to the list of folks supporting the Bourne Train Trail. Thanks for the work you are doing in this endeavor.
Mary McNiff
23 Albert rd.
Pocasset, MA 02559

Comment 12
From: Phil Castellano <pjcnec@yahoo.com>
Sent: Monday, May 6, 2019 1:32 PM
To: Steven Tupper
Subject: Rail Trail Project
Mr. Tupper
As a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program.
Sincerely,
Mr. Phil Castellano
13 Town Farm rd.
Pembroke, MA
02359

Comment 13
From: Diana Prince <dprince123@yahoo.com>
Sent: Monday, May 6, 2019 1:43 PM
To: Steven Tupper
Subject: Bourne Rail Trail Project
Dear Mr. Tupper
As a 10 year resident of Pocasset and a Friend of the Bourne Rail Trail project, we ask you to support the Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program. We believe it is important for people to have off-road access across all of Cape Cod to better enjoy this wonderful area in a safe and healthy manner.
Our family has over 100 years of history on Cape Cod (the Dixon's of Monument Beach). Doug's father, RIchard Prince, was Bourne's first representative on the Cape Cod Commission. We have a long term view of the importance of this project to the future of Bourne and Cape Cod overall.
Please lend your support to this very important project. Thank you for serving as Bourne's representative on the Cape Cod Commission.
Doug & Diana Prince
40 Cove Rd
Pocasset, MA 02559

Comment 14
From: Susan <pleadwell45@aol.com>
Sent: Monday, May 6, 2019 2:27 PM
To: Steven Tupper
Subject: Bourne rail trail

I am writing you in support of funding the Bourne rail trail. I am an avid bicyclist. As traffic continues to increase yearly, it is important for citizens to have safe places to cycle. I am a member of the Bay Area Senior Cyclists (out of the Bourne Council on Aging) and we especially like riding the local rail trails on our weekly rides. In fact, most of us prefer the convenience and safety the rail trails afford. I urge your Commission to support adding a Bourne rail trail to the existing network. Thank you.
Susan Pleadwell
pleadwell45@aol.com

Comment 15
From: Lee Miller <leemille@aim.com>
Sent: Monday, May 6, 2019 2:55 PM
To: Steven Tupper
Subject: Bourne Rail Trail Phase 1
Mr. Tupper
As a Friend of the Bourne Rail Trail project, I ask you to support??Rail Trail (Phase 1)??under the 2024 Highway Projects part of the Transportation Improvement Program.?? It is money well spent. the rail trails on the Cape are used by many.
--

Comment 16
From: Jack <jackdoherty5@comcast.net>
Sent: Monday, May 6, 2019 3:16 PM
To: Steven Tupper
Subject: Bourne Railtrail
Dear Mr. Tupper
As a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program.
Thank you,
Jack Doherty
Pocasset
Sent from Mail

Comment 17
From: carol anderson <QC331@hotmail.com>
Sent: Monday, May 6, 2019 3:31 PM
To: Steven Tupper
Subject: Bourne Trail Extension
Dear Mr Tupper,
My husband and I own a house at 17 Wings Neck Road In Pocasset. We bought it in 1979 and love the Cape. We are very much in favor of extending the bike trail and that the funds will be approved in a timely fashion.
Please do what you can .
Sincerely ,
Jim and. Carol Anderson
Sent from my iPhone

Comment 18
From: Elizabeth Henry <elizhenry2@gmail.com>
Sent: Monday, May 6, 2019 3:53 PM
To: Steven Tupper
Subject: Bourne Rail Trail

Hi Mr. Tupper,

We are long time residents of Bourne and are voicing our support for the Bourne Rail Trail. It will be a wonderful thing to happen for the Town of Bourne as well as the whole Cape and beyond.

Cars will kill Cape Cod if we fail to engage in bike riding, walking and public transportation. The trail will help improve our physical, emotional, and mental health as well as stimulate the local economy in various and diverse ways such as appreciation of nature, family times together, or getting around to the beach, store, or post office. We will lower our carbon footprints too.

I believe most people are supportive of the project whether it is rail to trail or rail & trail or some modification in between.

Thank you for reading this and I look forward to the future progress of the project.

Sincerely yours,

Liz and Bill Henry

Comment 19
From: Dorothy Erickson <dot2212@gmail.com>
Sent: Monday, May 6, 2019 3:59 PM
To: Steven Tupper
Subject: Bourne Rail Trail

friend of the BOurne Rail Trail, I am asking for your support for Phase #1 under the Highway Projects part of the Transportation Improvement Program.... it is SO important for our generation and for those to come. Thank you. Dorothy Erickson Pocasset MA.

Comment 20
From: Valerie Gudas <valereye@mac.com>
Sent: Monday, May 6, 2019 4:23 PM
To: Steven Tupper
Cc: Valerie Gudas
Subject: Bourne Rail Trail

Mr. Tupper
As a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program.
Thank you,
Valerie Gudas
17 Cove Lane
Pocasset, MA 02559

Comment 21
From: maraggio@verizon.net
Sent: Monday, May 6, 2019 4:33 PM
To: Steven Tupper

Mr. Tupper, I strongly support any means of helping get bike trails built in our state and as a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program.
Mary Maraggio
Member of the BASC (Bay Area Senior Cyclists

Comment 22
From: Ed Beard <edmundbeard@gmail.com>
Sent: Monday, May 6, 2019 4:35 PM
To: Steven Tupper
Subject: Bourne rail trail

Dear Mr. Tupper
As a resident of Pocasset and a strong supporter of the Bourne Rail Trail project, I ask that you support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program. This project would be a marvelous addition to the recreational resources available in Bourne and a great resource for all of Cape Cod to enjoy. It's a natural for this area. Thank you for your attention.
Edmund Beard
785A County Road, Pocasset, Ma. 02559
(781) 848-7681
--
Dr. Edmund Beard, PhD
University of Massachusetts (ret.)

Comment 23
From: sholian1@aol.com
Sent: Monday, May 6, 2019 4:41 PM
To: Steven Tupper
Subject: vote
hi I vote yes have been here since the first train stop was there but cant remember if the train was still operable. I love the train as I get older would love to be able to go into boston or anywhere the train would take me. Sue Ferguson Holian

Comment 24
From: Sally Curtin <sjcurtin@gmail.com>
Sent: Monday, May 6, 2019 5:59 PM
To: Steven Tupper
Subject: Bourne Rail Trail Project
Mr. Tupper
As a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program.
Thank you!
Sally and Dave Curtin
Pocasset MA

Comment 25
From: Bonnie Lippincott <bonnlipp@gmail.com>
Sent: Monday, May 6, 2019 6:33 PM
To: Steven Tupper
Subject: phase 1
As a friend of the Bourne Rail Trail I ask you to support Phase 12024 Highway Projects.
Bonnie Lippincott

Comment 26
From: Steve Gillum <sgillum54@gmail.com>
Sent: Monday, May 6, 2019 7:47 PM
To: Steven Tupper
Subject: Borne Rail trail
Mr. Tupper
As a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program.
Sent from my iPhone

Steve Gillum

Comment 27
From: Robert Dwyer <rdwyerphd@gmail.com>
Sent: Monday, May 6, 2019 8:39 PM
To: Steven Tupper
Cc: Kathy Dwyer
Subject: Support for prioritizing Bourne Rail Trail in CC TIP project list
Dear MR. Tupper,
My wife Katherine and I would like to express our strong support for your Commission to place a high priority for the initial phases of this project.
This project is a crucial missing link in non-auto transportation for the Upper Cape.
Kind regards,
Robert & Katherine Dwyer
25 Kenwood Rd.
Pocasset MA 02559

Comment 28
From: Geoff Sullivan <eightwt@gmail.com>
Sent: Tuesday, May 7, 2019 6:51 AM
To: Steven Tupper
Subject: Rail Trail Project
Mr. Tupper,
I'm a member of the Fairhaven, MA Bikeway Committe and a Friend of the Bourne Rail Trail project. I'm writing to ask for your support for Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program. We are working very hard to build a bikeway across the South Coast to the Bourne Bridge. The Bourne Rail Trail Project is yet another valuable link in this chain to connect all of these towns together with a safe bike route. The economic potential is enormous.
Thank you,
Geoff Sullivan
Fairhaven, MA
--
Sent from my solar powered Linux Mint machine!

Comment 29
From: Cynthia Monroe <pcmonroe@gmail.com>
Sent: Tuesday, May 7, 2019 7:44 AM
To: Steven Tupper
Subject: Rail Trail
Mr. Tupper,
As a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program.
Sincerely,
Paul and Cindy Monroe
20 Salt Marsh Lane
Pocasset, MA 02559

Comment 30
From: David Modest <david@modestsinger.com>
Sent: Tuesday, May 7, 2019 8:07 AM
To: Steven Tupper

Subject: TIP and UPW

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

David M. Modest

133 South Road, Pocasset MA

Sent from my iPad

Comment 31

From: Ellen Sullivan <sulliellen@gmail.com>

Sent: Tuesday, May 7, 2019 8:13 AM

To: Steven Tupper

Subject: TIP UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Ellen Sullivan

64 Depot Rd. PO Box 433

Cataumet, MA 02534

Comment 32

From: Jeffrey Marr <jeffrey.marr.jr@gmail.com>
Sent: Tuesday, May 7, 2019 8:14 AM
To: Steven Tupper
Subject: TIP , IPWP comment endorsement

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Jeff Marr & Alexandra Rodman
Boston, MA
In-Laws residents at 90 Old
dam Rd., Bourne, MA

Comment 33
From: Susan Maddigan <susan.maddigan@gmail.com>
Sent: Tuesday, May 7, 2019 8:15 AM
To: Steven Tupper
Subject: TIP UPWP

Dear Mr. Tupper,

As a very frequent almost daily bike path user, I am an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

- Susan Maddigan

Oakwood Ave Falmouth

Comment 34
From: Allan Dunn <toothdoc1966@gmail.com>
Sent: Tuesday, May 7, 2019 8:17 AM
To: Steven Tupper
Subject: Rail trail
IN FAVOR!
Sent by elves who live in my iPhone.

Comment 35
From: Jean Patch <jpatch320@gmail.com>
Sent: Tuesday, May 7, 2019 8:19 AM
To: Steven Tupper
Subject: TIP UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Jean Patch
10 Woodsong
Plymouth, Ma.

Comment 36
From: Patricia <mpatty3@comcast.net>
Sent: Tuesday, May 7, 2019 8:19 AM
To: Steven Tupper
Subject: BRT
I strongly endorse the inclusion of the BRT as a project to be funded within the timeframe of this TIP, and my great interest in the proposed Bourne Bicycle Transportation Plan.
Patricia Williams, cyclist
Sandwich

Comment 37
From: Paul Deluca <cjgeneralrealty@gmail.com>
Sent: Tuesday, May 7, 2019 8:29 AM
To: Steven Tupper

Subject: "TIP and UPWP"
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Paul DeLuca
Cedar Point Drive
Pocasset

--
Paul DeLuca
C.J. General Realty,L.L.C
208 Main Street
Weymouth, Ma. 02188
781.812.6339

Comment 38
From: fisfam@verizon.net
Sent: Tuesday, May 7, 2019 8:33 AM
To: Steven Tupper
Subject: TIP and UPWP
May 6, 2019
>
>
> Dear Mr. Tupper,
>
> As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
>
> The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the

Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
>
> This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
>
> I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Sincerely,
Jeanne Fisette
41 Carnoustie Rd
Bourne, MA 02532

Comment 39
From: Don Nelson <don@certainpath.com>
Sent: Tuesday, May 7, 2019 8:34 AM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Don Nelson
130 Saconesset Road
Falmouth

Comment 40
From: Forbes Singer <forbes.singer7@gmail.com>
Sent: Tuesday, May 7, 2019 8:35 AM
To: Steven Tupper
Subject: TIP and UWSP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Forbes Singer
133 South Road
Pocasset, MA 02559
Sent from my iPhone

Comment 41
From: Frances McSherry <fnmcs@verizon.net>
Sent: Tuesday, May 7, 2019 8:36 AM
To: Steven Tupper
Subject: TIP and UPWP

To Mr. Steven Tupper:

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP). This is EXCELLENT news!

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values. And it gets people outside to enjoy the health benefits of regular exercise, leaving cars in their driveways. Bourne is a beautiful place and should be enjoyed by all.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Best,
Frances McSherry
249 Scraggy Neck Road
Cataumet, MA

Comment 42
From: Rick Rheinhardt <rheinhardtr@gmail.com>

Sent: Tuesday, May 7, 2019 8:38 AM
To: Steven Tupper
Subject: Bourne Rail Trail

Dear Mr. Tupper,

As a Bourne citizen and user of many of the fine bicycle trails on Cape Cod, I am heartened to learn that the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP) will include the Bourne Rail Trail in its planning process.

The 6.25-mile Bourne section of the rail trail will tie the Cape Cod Canal trail to the Shining Sea Bikeway in Falmouth and Woods Hole, and in so doing, will provide extraordinary transportation and recreational opportunities for residents and visitors alike. I believe that the rail trail will also provide economic benefits to the villages through which it will pass and increase the values of nearby properties.

I also support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, this is the perfect time to conduct a broader study of options for maximizing the benefits of the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Rick Rheinhardt
Pocasset, MA

Comment 43
From: John Bonvouloir <john_bonvouloir@yahoo.com>
Sent: Tuesday, May 7, 2019 8:39 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

John Bonvouloir
72 Circuit Ave
Pocasset, MA. 02559
john_bonvouloir@yahoo.com <mailto:john_bonvouloir@yahoo.com>
781-504-6967 mobile and text

Comment 44
From: Susan Barlow <efgsue@gmail.com>

Sent: Tuesday, May 7, 2019 8:42 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Susan Barlow
125 Puritan Rd
Buzzards Bay, MA 02532
Sent from my iPhone

Comment 45
From: MARGARET JENKINS <jaymarjen@comcast.net>
Sent: Tuesday, May 7, 2019 8:44 AM
To: Steven Tupper
Subject: Bourne Rail Trail

Mr Tupper

As Bourne year around residents, we strongly support the proposed Bourne Rail Trail. We ask for your support of the Rail Trail (Phase 1) under the 2024 Highway Projects, part of the Transportation Improvement Program.

Thank you for your help.

George and Margot Jenkins
219 South Road
Pocasset, MA 02559

Comment 46
From: Deborah Palmer <snowflake1067@icloud.com>
Sent: Tuesday, May 7, 2019 9:09 AM
To: Steven Tupper
Subject: Bourne rail trail

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea

Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Deborah Butler
102 Roseland Terrace
Marstons Mills, MA
02648
Sent from my iPhone

Comment 47
From: Sally Girts <esgirts@gmail.com>
Sent: Tuesday, May 7, 2019 9:11 AM
To: Steven Tupper
Subject: BRT TIP and UPWP supporter
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
E Sally Girts
62 Rocky Point Rd
Bourne, MA 02532
P.S. I used this "form" letter because I wouldn't be able to state the facts and feelings any better than these. I would like to include that I and my family and friends are avid uses of the paths already on Cape and feel this extension is desperately needed. Thank you again!

Comment 48
From: Kate Daniels <kdaniels@sps.edu>
Sent: Tuesday, May 7, 2019 9:19 AM

To: Steven Tupper
Subject: BRT
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Kate MacKinnon Daniels
7 Gaffield Avenue Monument Beach, MA 02553

Kate Daniels
Director of Academic Support
Head of Manville House
Girls Cross Country Coach
St. Paul's School
325 Pleasant Street
Concord, NH 03301
W: 603-229-4840

Comment 49
From: David Howell <davehowell111@gmail.com>
Sent: Tuesday, May 7, 2019 9:33 AM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Sincerely,

David R. Howell

363 Wings Neck Road

Pocasset, Ma 02559

Comment 50

From: JAY SMITH <jamescsmith@hotmail.com>

Sent: Tuesday, May 7, 2019 9:36 AM

To: Steven Tupper

Subject: Rail Trail. TIP UPWP

Dear Mr. Tupper,

This partially a form letter, but it expresses my feelings precisely !!

As an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Jay and Nancy Smith

40 Abbies Lane

North Falmouth,02556

Comment 51

From: Donald & Linda Kay <donaldandlinda@gmail.com>

Sent: Tuesday, May 7, 2019 9:37 AM

To: Steven Tupper

Subject: Regarding TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the

Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Donald and Linda Kay
17 Berrywood Court
Bourne, MA02532

Comment 52
From: Fred Cushing <fcush52@aol.com>
Sent: Tuesday, May 7, 2019 9:41 AM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
I am happy to learn that the Bourne Rail Trail is included in the up coming funding cycle (FFY 2020-2024 TIP). I also support the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's UPWP for 2020.
Thank you for your support in this important project.
Fred S Cushing
30 Meadow Lane
Bridgewater, MA 02324

Comment 53
From: George Slade <geoslade@msn.com>
Sent: Tuesday, May 7, 2019 9:44 AM
To: Steven Tupper
Subject: Bourne Rail Trail
Dear Mr. Tupper:
As a community member who is a select board member, Pedestrian Bikeway member, and an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
We were heartened to recently host an informational event on May 1st, in which the first segment (in Bourne) of the trail was on view
to the community. It was well attended with a split among local abutters, residents of the other town's villages, and neighboring Falmouth. The interest was genuine, and the questions were probing. The enthusiasm for adding a healthy, outdoor option for the villages east of the Cape Cod Canal was indicative of a project that should move forward.
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your continued support of this exciting project.

George Slade, Board of Selectmen

Home address: 15 Eldridge Street, Bourne MA 02532

Comment 54

From: Gil Dering <gster906@gmail.com>
Sent: Tuesday, May 7, 2019 9:45 AM
To: Steven Tupper
Subject: TIP & UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Sincerely,

Gil Dering

Comment 55

From: James D. Sullivan <j.sullivanmd@comcast.net>
Sent: Tuesday, May 7, 2019 9:46 AM
To: Steven Tupper
Subject: UPWP and TIP

Dear Mr. Tupper,

Please support the construction of the Bourne Rail Trail. The railbed through Bourne is lightly used now by an occasional trash train. Meanwhile, the railtrails on either end of the Bourne railway, in Falmouth and along the Canal, have hundreds of cyclists, runners, walkers using them on nice days. We don't have many sidewalks in Bourne. Many of out roads are narrow and windy and unsafe for biking or walking. The rail trail will pass through or near village centers, stores, public beaches, conservation land and beautiful woods and saltmarshes that are now inaccessible. Also, the trail would allow uninterrupted off road bike access from towns on Martha's Vineyard to Sandwich.

Sincerely,

James D. Sullivan

Comment 56

From: William Brown <blbrown47@msn.com>
Sent: Tuesday, May 7, 2019 10:00 AM
To: Steven Tupper
Subject: TIP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

William Brown
9 Settlers Way
Bourne, MA 02532

Comment 57
From: Leonard Hills <hills3149@gmail.com>
Sent: Tuesday, May 7, 2019 9:59 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Leonard Hills
1 Cheryl Lane

Pocasset, MA

Comment 58
From: lois Fountain <loiswwrhm@verizon.net>
Sent: Tuesday, May 7, 2019 10:01 AM
To: Steven Tupper
Subject: TIP UPWP
Dear Mr. Tupper.
As a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program.
Sincerely,
Lois Fountain

Comment 59
From: Karen Wood <kswood50@gmail.com>
Sent: Tuesday, May 7, 2019 10:09 AM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Karen and Thomas Wood
115 Bellavista Drive
Pocasset, MA 02559
--
Karen Wood
Independent Sales Representative
Phone 508.564.5038
Fax 508.564.5058
Cell 781.534.2399
kswood50@gmail.com <mailto:kswood50@gmail.com>

Comment 60
From: Nunzio DiMillo <ndimillo@comcast.net>
Sent: Tuesday, May 7, 2019 10:38 AM
To: Steven Tupper

Subject: TIP and UPWP

Dear Mr. Tupper,

I was a Bourne (Sagamore Beach) homeowner for sixteen years from 2002-2018, and now visit Bourne as a summer renter for the months of July and August. As an avid cyclist, I am very excited about prospect of connecting the Cape Cod Canal path to the Shining Sea Bikeway. I use my cycling to raise funds in events such as the Pan Mass Challenge, MS 150 Cape Cod Getaway, and others, so this extension would provide a lengthy avenue for me to safely train for these events without riding on busy Cape Cod roadways during the summer months.

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Nunzio DiMillo
5580 Piccolo St.
Nokomis, FL 34275

Comment 61

From: Lloyd Franke <lfranke@comcast.net>
Sent: Tuesday, May 7, 2019 11:05 AM
To: Steven Tupper
Subject: TIP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.
Lloyd Franke
40 Mashnee Rd
Bourne, MA 02532
Sent from my iPhone

Comment 62
From: Don Boardman <dmboardman@gmail.com>
Sent: Tuesday, May 7, 2019 12:17 PM
To: Steven Tupper
Subject: Bourne Rail Trail
My wife and I part time residents of Pocasset and great supporters of the Bourne Rail Trail project. We hope that you will include the BRT in your current planning for a start as soon as possible.
Thank you
Don and Jan Boardman
145 Tahanto Rd
Pocasset, MA

Comment 63
From: Kwilson12 <kwilson12@comcast.net>
Sent: Tuesday, May 7, 2019 12:19 PM
To: Steven Tupper
Subject: TIP AND UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project
Karen Wilson

Comment 64
From: Alexandra Rodman <alexandrarodman@gmail.com>
Sent: Tuesday, May 7, 2019 12:37 PM
To: Steven Tupper
Subject: BRT - TIP Endorsement
Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Alexandra Rodman
Resident of 90 Old Dam Rd., Bourne, MA

Comment 65
From: lrd63@yahoo.com
Sent: Tuesday, May 7, 2019 12:48 PM
To: Steven Tupper
Subject: Ccrt

I am very much in favor of the Extension of the Cape Cod Rail Trail connecting the Bourne canal trail and the bike path at Rte 151 in North Falmouth.
Sent from my iPhone

Comment 66
From: springs4th@aol.com
Sent: Tuesday, May 7, 2019 1:11 PM
To: Steven Tupper
Subject: TIP UPWP

Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail

moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Susan M Pisapia
35 Bennets Neck Drive
Pocasset 02559

Comment 67
From: James Tau <jtau2002@yahoo.com>
Sent: Tuesday, May 7, 2019 1:58 PM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
James Tau
28 Cape Codder Rd. #206
Falmouth, MA 02540

Comment 68
From: Gina Capuano <gina.capuano@gmail.com>
Sent: Tuesday, May 7, 2019 2:31 PM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
John Glynn and Gina Capuano
12 Wing Rd
Pocasset, MA 02559

Comment 69
From: Steven Finn <saf8001@gmail.com>
Sent: Tuesday, May 7, 2019 2:36 PM
To: Steven Tupper
Subject: TIP & UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Steven & Terry Finn
11 Place Rd.
Falmouth, Ma. 02540

Comment 70
From: Tim Russell <skeeve1313@gmail.com>
Sent: Tuesday, May 7, 2019 3:27 PM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a Bourne resident who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-

motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
As an avid bicycle rider, I am greatly looking forward to the these wonderful changes to our community. Thank you very much for your support of this exciting project.
Sincerely,
Tim Russell
12 Dale St.
Monument Beach, MA 02553
508-274-1915
--

Comment 71
From: Dale Wesley <dalewesley55@hotmail.com>
Sent: Tuesday, May 7, 2019 3:46 PM
To: Steven Tupper
Subject: BRT
I strongly support the Bourne Rail Trail from the canal towards Woods Hole!
Sent from my iPhone

Comment 72
From: Eugene McCarthy <eugenejmccarthy@gmail.com>
Sent: Tuesday, May 7, 2019 4:41 PM
To: Steven Tupper
Subject: Rail Trail
Sent from my iPhoneMr. Tupper,
As a Friend of the Bourne Rail Trail project, I ask you to support Rail Trail (Phase 1) under the 2024 Highway Projects part of the Transportation Improvement Program. Thank you for your consideration.
Eugene J. McCarthy Jr.

Comment 73
From: Carl Georgeson <clgeorgeson@gmail.com>
Sent: Tuesday, May 7, 2019 4:50 PM
To: Steven Tupper
Subject: 2020-2024 T I P
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the

Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
Thank you very much for your support of this exciting project.
Carl Georgeson
1 Olde Forge Lane
Bourne, MA 02532

Comment 74
From: Bill & Maureen Wieler <4wielers@comcast.net>
Sent: Tuesday, May 7, 2019 4:51 PM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Maureen Wieler
15 Salt Marsh Lane
Pocasset, MA 02559
home: 508-563-2968
cell: 508-246-4870

Comment 75
From: Carl Georgeson <clgeorgeson@gmail.com>
Sent: Tuesday, May 7, 2019 4:56 PM
To: Steven Tupper
Subject: Inclusion of the ?Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to strongly support the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020.
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-

motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
With the plans for the Bourne Rail Trail moving forward, NOW is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Carl Georgeson
1 Olde Forge Lane
Bourne, MA 02532

Comment 76
From: MICHAEL&TOBY RYAN <mikearyan33@comcast.net>
Sent: Tuesday, May 7, 2019 5:23 PM
To: Steven Tupper
Subject: Bourne Rail Trail
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Mike Ryan
424 Barlows Landing Rd
Pocasset, MA

Comment 77
From: Joan Eccleston <boeccleston@gmail.com>
Sent: Tuesday, May 7, 2019 7:49 PM
To: Steven Tupper
Subject: Bourne Rail Trail
Thank you so much for including this on the TIP proposed program for 2024. It's a beautiful area for a trail. Joan Eccleston

Comment 78
From: Nancy Rolli <nanrolli@hotmail.com>
Sent: Tuesday, May 7, 2019 8:31 PM
To: Steven Tupper
Subject: Bourne Rail Trail Project

Dear Mr. Tupper,
As an avid biker but a senior citizen who desires safe situations to recreate, I am urging you to support the Bourne Bike Trail project (phase 1) .
Sincerely,
Nancy E. Rolli

Comment 79
From: Bob George <bobgeo45@gmail.com>
Sent: Tuesday, May 7, 2019 8:38 PM
To: Steven Tupper
Subject: Bourne Rail Trail Support
Steven,
I am writing to express my support of the Bourne Rail Trail - Phases 1 through 4 as documented in the MassDOT Transportation Improvement Program.
I am a home-owner in Pocasset - on Windsong Circle which is a cul-de-sac ending just before the existing railroad tracks - just south of the old Pocasset Station.
I have seen presentations and believe this Trail will be an excellent addition to both the year-round local community and summer visitors. I have biked from North Falmouth to Woods Hole and also along the Cape Cod Canal.
As a homeowner (tax payer) I realize there may be an impact on my taxes but this is excellent project. Please do your best to support and accelerate this Trail.
Thanks.
Bob George

Comment 80
From: JAMES M KILPELA <jmkilpela@comcast.net>
Sent: Tuesday, May 7, 2019 8:47 PM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail Shining Sea Path Extension, I am writing regarding the inclusion of this project in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024).
As one who has been cyclIng for over 45 years and in many different states, I can tell you that the proposed extension to the Shining Sea Trail will be very important to Bourne, Cape Cod, Massachusetts and to many cyclists who will be visiting our area. Eventually, this section will be an important link to a trail extending from Wood's Hole and Bourne to Provincetown. I believe that this will be an economic boost to Bourne and will also ensure safe cycling by routing bikers off of busy streets.
This is a great project that deserves inclusion in the TIP – FFY2020-2024.
I am also writing in support of a proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020.
Thank you very much for your very important support of this project.
Jim Kilpela
45 Main Street, #33, Wareham MA

Comment 81
From: Johanna Denapoli <johannadenapoli@gmail.com>
Sent: Tuesday, May 7, 2019 10:53 PM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Johanna DeNapoli Eicher
70 Old Dam Road Bourne Ma

Comment 82
From: Tricia <tdipisa@comcast.net>
Sent: Tuesday, May 7, 2019 11:17 PM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining <x-apple-data-detectors://8> Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Tricia DiPisa
94 Westwood Road
North Falmouth,MA
Sent from my iPad

Comment 83
From: Joseph Tavilla <silverski6184@comcast.net>

Sent: Wednesday, May 8, 2019 6:23 AM
To: Steven Tupper
Subject: TIP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Joseph Tavilla
Barnstable
Sent from my iPhone

Comment 84
From: jsullivanmd <jsullivanmd@comcast.net>
Sent: Wednesday, May 8, 2019 7:02 AM
To: Steven Tupper
Subject: TIP draft by MPO

Jolanta Sullivan
45 West Way
Mashpee, MA 02649

Steven Tupper
Cape Cod Commission

Dear Mr. Tupper.

As a former resident of Bourne and now a frequent visitor to the greater area of the beautiful Bourne I am excited to see the plans for Bourne Rail Trail progressing into reality.

It was exciting to hear some years back of just an idea for a Bikeway in a few people's minds and then very gratifying to see it being transformed into a solid plan, and currently observing the works on it in progress. Exciting !

It has been a great accomplishment to have BRT project included in the Transportation Improvement Program for years 2020 - 2024 and I would like to congratulate you on your efforts leading to that milestone achievement.

Great project deserving such inclusion and a work well done leading to it.

As a passionate outdoorsman (-woman) and an avid biker who uses Shinning Sea Bikeway frequently, I can attest to the endless recreational and nature bonding, hence nature preserving, benefits of it.

And the economic value through the increased property values (as evident through Falmouth data) and the health benefits, and the exposure to hence increased sensitivity to our Cape Cod precious natural flora and fauna, cannot be underestimated.

It is worth mentioning that although referred to commonly as a "bike path" it is in fact multipurpose use "path" as it's being used for walks for kids and grown ups of all ages, for jogging, rollerblading, for nature observing, and for cultural/esthetic pursuits by many a nature painters and photographers mesmerised by the beauty of the area.
Not withstanding is the fact that many opt to bike to Woods Hole to catch MV ferry instead of driving there.
However, as I am using the "Shinning path" for my bike rides, starting in North Falmouth and riding through West Falmouty then Falmouth and into Woods Hole, the awareness that all we are missing are the mere six miles (6.25 miles to be precise) of that bike path to be connected to the Cape Cod Canal makes it all so much more urgent that we put our efforts into building that extension.
The increased tourist attraction of it alone should be a motivation enough but the broader benefits already mentioned by me earlier should just make it a priority.
And as I appreciate an effort put into the project and accomplishments thus far I believe strongly that formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020 would greatly facilitate the progress of the BRT project and I support it and I urge you to put forward the efforts leading to it.
Being fully aware of certain logistics behind the project, i think that having broader studies of the options for maximizing the benefits from creating Bourne Rail Trail would allow for more efficient and more expedient progress of the project.
Thank you very much for the great effort you have put into this exciting project thus far.
I support the project fullheartedly and hope that we - as a community - can bring it to a successful completion soon.
Sincerely
Jolanta Sullivan
Sent from my Verizon, Samsung Galaxy smartphone

Comment 85
From: Betty Broome <broome52@gmail.com>
Sent: Wednesday, May 8, 2019 8:26 AM
To: Steven Tupper
Subject: Bourne Rail Trail
Dear Mr. Tupper,
This is to encourage you to support funding for the Bourne Rail Trail. I am a member of the Bourne Area Senior Cyclist and ride both the Cape Cod Canal Trail, and the Shining Seas Bike Path frequently. These trails are very well used and offer people of all ages the opportunity to enjoy the beauty of the Cape without the danger of cycling on the roads. Since the Cape is ecologically fragile it is important to encourage residents and tourist to enjoy its beauty without contributing to vehicle traffic as well as carbon pollution.
Biking allows us to get needed exercise, get to know an area, become invested in solving its unique problems, and contribute to the health and well being of the community.
Connecting these paths encourages bike tourism, reduces vehicle use, and contributes to the economy.
Your support of funding for the Bourne Rail Trail Project is greatly appreciated.
Sincerely,
Betty Broome

Comment 86
From: Alice Thomason Van Oot <vtalice@gmail.com>
Sent: Wednesday, May 8, 2019 9:49 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,
As an ardent supporter of efforts to improve safety conditions that will encourage and support bicyclists across Cape Cod, I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP). Thank you !

I would also like to express support for, and encourage the CCC to work diligently on, any and all projects that will move Cape Cod from the car-centric community it has always been to one that promotes Complete Streets design to support multimodal use of roads and pathways. This effort will cut car emissions, increase the vitality of our villages and neighborhoods, improve health and improve safety for residents and visitors.
--
Alice Thomason Van Oot; Orleans MA

Comment 87
From: John Holden <rjholdenjr@gmail.com>
Sent: Wednesday, May 8, 2019 10:10 AM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
I live in Cataumet, MA in a house that backs up to the railroad line that will become the future Bourne Rail Trail (Shining Sea Bike Path Extension) for which I am an ardent supporter. I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as to provide an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, on which I love to ride, it will provide economic benefits to all the villages, and it will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Robert J. Holden, Jr. "John"
14 Pine Hill Rd
PO Box 153
Cataumet, MA 02434
--
Make it a great day!

Comment 88
From: Meagen Colon <meagenlc@gmail.com>
Sent: Wednesday, May 8, 2019 10:12 AM
To: Steven Tupper
Subject: Bourne Rail Trail: TIP and UPWP
Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Meagen Colon
3 Beachwood Road
Bourne, MA 02532

Comment 89
From: clrgc@comcast.net
Sent: Wednesday, May 8, 2019 10:22 AM
To: Steven Tupper
Subject: TIP UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Charles and Bonny Rose
Bourne Village

Comment 90
From: Rick Howe <rickhowe9@gmail.com>
Sent: Wednesday, May 8, 2019 1:35 PM
To: Steven Tupper

Subject: TIP & UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

--

Rick
Rick Howe
Box 1011
Pocasset MA 02559
rickhowe9@gmail.com <mailto:rickhowe9@gmail.com>
508-566-4342

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Comment 91

From: Carmody, Gerard F - Boston, MA - Contractor <GFCarmody2@uspis.gov>
Sent: Wednesday, May 8, 2019 3:19 PM
To: Steven Tupper
Cc: Info@bournerailtrail.org
Subject: "TIP" and "UPWP" Support Letter for the Bourne Rail Trail (Shining Sea Bike Path Extension)
Importance: High

Dear Mr. Tupper,

As a Pocasset community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), we are writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the

Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
We are also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Gerard F. Carmody
Carolyn Carmody
417 County Road
Pocasset, MA 02559

Comment 92
From: Ernest LeBlanc <mmealeblanc@comcast.net>
Sent: Wednesday, May 8, 2019 5:58 PM
To: Steven Tupper; John Woodley
Subject: Rail Trail Funding
Mr. Tupper
As a Friend of the Bourne Rail Trail project, I ask you to support
Rail Trail (Phase 1) under the 2024 Highway Projects part of the
Transportation Improvement Program.
Repectfully,
Ernest A.Le Blanç
14 Windsong Circle
Poçasset, MA 02559

Comment 93
From: Alexander Klein <ark4612@gmail.com>
Sent: Thursday, May 9, 2019 6:38 AM
To: Steven Tupper
Cc: Friends of the Bourne Rail Trail
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages and will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.

Alexander Klein
233 Shore Road
Bourne, MA 02532

Comment 94
From: David Tribuzio <dtribuzio@gmail.com>
Sent: Thursday, May 9, 2019 6:54 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

David Tribuzio
49 Siasconset Dr Sagamore Beach, Ma 02562
"Just keep swimming, just keep swimming."
Dory- Finding Nemo

Comment 95
From: Mark Emmons <memmons@rouxinc.com>
Sent: Thursday, May 9, 2019 7:56 AM
To: Steven Tupper
Subject: TIP and UPWP Support of the Bourne Rail Trail

Dear Mr. Tupper,

As a resident of Cape Cod , I am writing you a letter to ask for your support to continue with the Cape Cod Metropolitan Planning Organization (MPO) draft Transportation Improvement Plan (TIP) sponsorship of the Bourne Rail Trail (BRT) during the 2019-2023 planning period. This project has a unique opportunity to connect two cycling pathways into one continuous pathway from Woods Hole to Sandwich. Please encourage the MPO’s to support the Unified Planning Work Program (UPWP) with the planning activities to study the safety concerns and feasibility by creating a Bourne Bicycle Transportation Plan.

Thank you for your consideration.

Mark M. Emmons P.E.
4 Worcester Ave.
Monument Beach , MA 02553
Mobile: 603-738-5357
Email: memmons@rouxinc.com <mailto:memmons@rouxinc.com> | Website: www.rouxinc.com

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Comment 96
From: Diane McCarter <mccarterhomes@gmail.com>
Sent: Thursday, May 9, 2019 8:16 AM
To: Steven Tupper
Subject: Rail trail

Mr Tupper,

I support the bike rail trail. We have needed this safe bike way for quite some time. I grew up here in the 60's we needed a safe bike way then and we still need it now.

Diane McCarter
508-320-1035
Keller Williams Realty
Sent from my iPhone

Comment 97
From: Kuffler Eugénie <ekuffler@yahoo.com>
Sent: Thursday, May 9, 2019 8:21 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Eugenie Kuffler
49 Gosnold Road
Woods Hole

MA 02543

Comment 98
From: William Haynes <whaynes@maritime.edu>
Sent: Thursday, May 9, 2019 10:09 AM
To: Steven Tupper
Subject: Bourne Rail Trail TIP and UPWP

I am writing to let you know of my support for the Bourne Rail Trail/Shining Sea Bikeway Extension project in the town of Bourne, and am pleased to learn that the Bourne Rail Trail was included in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The trail will will provide a wonderful recreational asset for both residents and visitors to Bourne. It will draw tourists who otherwise might not stop in Bourne, and it will create new businesses and economic activity in the villages of Gray Gables, Monument Beach, Pocasset, and Cataumet which the trail passes through. Building this 6.5 mile long segment will create an uninterrupted trail nearly 25 miles long, which has no segments on busy public roads and very few road crossings, making it a safe activity even for small children, and a 50 mile long round trip will draw some serious cyclists, too.

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, now is the time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you,
William Haynes
9 Rainbow Circle
Bourne, MA

Comment 99
From: Louis Zicht <lzicht@gilmac.com>
Sent: Thursday, May 9, 2019 10:56 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this project.
Louis Zicht
265 Cairn Ridge Road
East Falmouth, MA

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Our mailing address is:
P.O. 3092
Pocasset, MA 02559
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Friends of the Bourne Rail Trail · 314 Barlows Landing Road · P.O. Box 3092 · Pocasset, Ma 02559 · USA

Comment 100
From: Sandra Wiechmann <Sandra_Wiechmann@onsetcomp.com>
Sent: Thursday, May 9, 2019 11:25 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Sandra Wiechmann
15 Nye Lane Bourne

Comment 101
From: Mercedes Rodman <mar30960@gmail.com>
Sent: Thursday, May 9, 2019 12:42 PM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation

and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Mercedes Rodman
90 Old Dam Rd.
Bourne, MA

Comment 102
From: Bob Screen <rbrt.screen@gmail.com>
Sent: Thursday, May 9, 2019 6:40 PM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Sincerely,
Robert and Nancy Screen
21 Sea Breeze Drive
Bourne, MA 02532

Comment 103
From: Paul & Debbie Gannett <gannetts@verizon.net>
Sent: Thursday, May 9, 2019 9:31 PM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages and will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Paul Gannett
10 Magnusson Ct.
E Sandwich, MA 02537

Comment 104
From: Rochelle Rottenberg <rerottenberg@stkate.edu>
Sent: Thursday, May 9, 2019 11:28 PM
To: Steven Tupper
Subject: Rail Trail Project

Dear Mr Tupper,

As summer residents of Pocasset, we ask you to please support the Rail Trail (Phase 1) under the 2024 Highway Projects which is part of the transportation Improvement Program.

Thank you,

David and Shelly Rottenberg, 410 Barlow's Landing Road

Comment 105
From: Donna Baker <castlequeen2206@comcast.net>
Sent: Friday, May 10, 2019 5:24 PM
To: Steven Tupper
Subject: bike trail

We are writing to implore you to consider the Cape Cpd Canal Bike Trail a priority. I have lived in Europe where biking is a mode of daily transportation and I assure you much safer then here. I ride all year at the Cape to constant yells and horns blowing to get of the way. It is impossible to ride safely with no bike lane and debris on the side of the road. It would be much safer, especially for families, to have the rail trail longer and available. I know there are many priorities but hope that receipt of this statement will be taken as an advisement of interest in the project moving forward. I belong to two bike clubs in the area and know that it would be such a benefit to have the bike path.

Thank you for your time.

Jean Claude Castelein
Donna Castelein
65 Deseret Dr.
Bourne, Ma 02532

Comment 106
From: Ken Cheitlin <kenac@comcast.net>
Sent: Sunday, May 12, 2019 10:52 AM
To: Steven Tupper

Subject: TIP and UPWP
Dear Mr. Tupper,
I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Ken Cheitlin
Pocasset, MA

Comment 107
From: hoeyh@aol.com
Sent: Sunday, May 12, 2019 1:38 PM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
On behalf of the Friends of the Bourne Rail Trail, I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
We are also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
I remember what you said about the outpouring of support you received when we had asked our supporters to please respond to the Commission. I only hope that support continues!
Alice Howe, Director
Friends of the Bourne Rail Trail

Comment 108
From: Dcurtin626 <dcurtin626@aol.com>
Sent: Sunday, May 12, 2019 1:51 PM

To: Steven Tupper
Cc: sjcurtin@gmail.com
Subject: TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

David & Sally Curtin...year round residents!
297 Wings Neck Rd.
Pocasset
MA 02559

Comment 109
From: Nathan Robinson <nathan.h.robinson@gmail.com>
Sent: Sunday, May 12, 2019 5:04 PM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile “missing link” that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha’s Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is an important project to the region that clearly deserves inclusion in the TIP – FFY2020-2024!

We are also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO’s Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you,

Nate Robinson
281 Newbury Street, 4R
Boston, MA 02115

Comment 110
From: John Carroll <carroll.jg@gmail.com>
Sent: Sunday, May 12, 2019 9:54 PM
To: Steven Tupper
Subject: TIP UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.

This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

John Carroll
Pocasset MA

Comment 111
From: Lauren Robinson <laurenrobinson02532@gmail.com>
Sent: Monday, May 13, 2019 12:10 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

As community members who are faithful supporters of the Bourne Rail Trail since its inception, we are writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. In addition it will tie multiple villages in Bourne to one another, and offer people new safer options for traveling within the town as a pedestrian or bicyclist. It will provide a useful transportation and recreation option for people of all ages. As we have seen with the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages and has the potential to increase property values, and encourage healthy lifestyle practices.

From what we understand, this first phase of the project as outlined at a public meeting at Bourne High School on May 1, will link Bourne Village to the Gray Gables development. This will give adults and children living in those neighborhoods a safer biking and walking route to the schools and public library. As a Bourne Village resident, I will gain a safer biking or walking route to the Mashnee Dike beach and to Gray Gables Market. We will be able to cultivate a healthier lifestyle for ourselves with these transportation improvements that take the needs of pedestrians and cyclists into consideration.

This project deserves inclusion in the TIP – FFY2020-2024!

I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this forward thinking project that supports healthy lifestyle for the residents and visitors to Bourne and surrounding towns.

Howard and Lauren Robinson
47 Cotuit Road
Bourne, MA 02532

Comment 112
From: Friends of the Bourne Rail Trail <info@bournerailtrail.org>
Sent: Monday, May 13, 2019 8:25 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

On behalf of the Friends of the Bourne Rail Trail, I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP). The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic and quality of life benefits to the community.

This is an important project to the region and deserves inclusion in the TIP – FFY2020-2024!

We are also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.

Thank you very much for your support of this exciting project.

Nathan Robinson, President
Friends of the Bourne Rail Trail
--
Friends of the Bourne Rail Trail
www.bournerailtrail.org
Instagram: @bournerailtrail
PO BOX 3092 POCASSET MA 02559-3092

Comment 113
From: Bonnie McInnis <mcinnis.bonnie@yahoo.com>
Sent: Monday, May 13, 2019 8:44 AM
To: Steven Tupper
Subject: TIP and UPWP

Dear Mr. Tupper,

As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).

The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea

Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Bonnie McInnis
11 Wing Rd.
Pocasset, MA

Comment 114
From: Sarah G. Jackson <sgay17@gmail.com>
Sent: Monday, May 13, 2019 9:39 AM
To: Steven Tupper
Subject: TIP and UPWP
Dear Mr. Tupper,
As a community member who is an ardent supporter of the Bourne Rail Trail (Shining Sea Bike Path Extension), I am writing to applaud the inclusion of the Bourne Rail Trail in the upcoming Transportation Improvement Program funding cycle (FFY 2020-2024 TIP).
The Bourne Rail Trail is currently a 6.25 mile "missing link" that could be a magnificent, safe multi-user path, and will connect the Cape Cod Canal path in Sandwich and Bourne to the Shining Sea Bikeway in Falmouth and Woods Hole. This unbroken path, from the town of Sandwich to the village of Woods Hole, will tie multiple villages to one another, as well as providing an uninterrupted non-motorized transportation option to Martha's Vineyard. It will provide an extraordinary transportation and recreation facility for users of all ages, skills, and interests. Based on the experience of the Shining Sea Bikeway in Falmouth, it will provide economic benefits to all the villages will increase property values.
This is such a great project that it clearly deserves its inclusion in the TIP – FFY2020-2024!
I am also writing in support of the proposal to include formation of a Bourne Bicycle Transportation Plan in the MPO's Unified Planning Work Program for 2020. With the plans for the Bourne Rail Trail moving forward, it is the perfect time for a broader study of the options for maximizing the benefit from the Bourne Rail Trail.
Thank you very much for your support of this exciting project.
Sarah G. Jackson
562 Tremont st. #1 Boston, MA 02118
130 Emmons rd. Monument Beach, MA 02553
--
Sarah G. Jackson
M: 617.320.6251
O: 617.466.4355
Currently reading: http://tinyurl.com/p6wmp44

Comment 115
From: Christopher Pine <chris@blugreensolutions.com>
Sent: Monday, May 13, 2019 12:18 PM

Public Comment 3-115

To: Steven Tupper
Subject: Bourne Rail Trail
Hello Steven: Just wanted to reach out and send my support for the Bourne Rail Trail. As an involved resident and business owner in Bourne, I think this is a very important and beneficial project for our town and the region.

Chris Pine CID, CIC, CLWM, CLIA, CIT, MCLP, CLVLT
4 Barlows Landing Road, Suite 12
Pocasset MA 02559
Office: 508-564-4465
Cell: 508-274-0636
chris@blugreensolutions.com <mailto:chris@blugreensolutions.com>

From: Dan Fortier
To: Steven Tupper
Cc: Tom Andrade; Kristy Senatori; Patty Daley; Anne McGuire
Subject: Dennis Route 134 Corridor Study
Date: Tuesday, May 14, 2019 2:14:50 PM

I am writing to offer my support for the Dennis Route 134 Corridor Study. As you are aware, Dennis has been working on the creation of an Economic Center for this area since the adoption of the 2009 Regional Policy Plan. The UPWP effort to analyze transportation needs in this corridor will greatly benefit the planning for this center.

Per our discussion last week, the UPWP effort can be coupled with a grant proposal that the Town and Commission will be pursuing to provide the town with additional guidance for future design standards for what is being referred to as the Exit 9 Smart Growth Overlay District, a zoning proposal being pursued under Chapter 40R. Chapter 40R provides financial incentives for smart, mixed-use, development areas. The Chapter 40R incentive payments for this area will be targeted towards infrastructure investments in the area, specifically waste water and transportation.

This analysis will be of tremendous long-term value to the Town.

Daniel J. Fortier
Town Planner
Town of Dennis
685 Route 134
South Dennis MA 02660

508-760-6119

This electronic message is confidential and intended for the named recipient only. Any dissemination, disclosure or distribution of the contents of this communication is unlawful and prohibited. If you have received this message in error, please contact the sender by return email and delete the copy you received. Thank you.

From: Matt & Siobhan
To: Steven Tupper
Subject: Please Support the Rail Trail - Phase I
Date: Wednesday, May 15, 2019 6:15:17 AM

Good Morning Mr. Tupper,
As a Friend of the Bourne Rail Trail project, I ask you to support *Rail Trail (Phase 1)* under the 2024 Highway Projects part of the Transportation Improvement Program.
Thank you in advance,
Matt & Siobhan Dennehy – Pocasset

From: compalign@aol.com
To: Steven Tupper
Subject: TIP and UPWP
Date: Wednesday, May 15, 2019 2:55:07 PM

Attn: Steven Tupper

Would like to express my support for the project plan to build the proposed Bourne Rail Trail (BRT). Hopefully this project will continue to gain more detail and funding in the next Transportation Improvement Plan (TIP) so that the proposed "Phase 1" can proceed wth implementation. Also, would look forward to leaning of progress on the Bourne Bicycle Transportation Plan, that would include the proposed BRT.

As a ten year redident of Bourne this will be an exciting time seeing this vision of the new rail trail being realized. One big benefit will be that it will help make Cape Cod a top recreational cycling destination.

Regards,

Michael E. Garrity

Sagamore Beach, MA

From: Jamie Veara
To: Steven Tupper
Cc: Matt Pitta
Subject: RTP
Date: Monday, June 24, 2019 11:01:55 AM

Cape Cod Commission Transportation Program
Attn Steven Tupper, Transportation Program Manager
3225 Main Street
PO Box 226
Barnstable, MA 02630-0226

Thank you for the opportunity to provide comments on the Regional Transportation Plan.

It goes without saying that the Sagamore and Bourne Bridges are the lifelines for our residents, customers, employees and vendors. Absent a reliable and safe way across the Cape Cod Canal, our Company's ability to do business as well as businesses regionwide would be irreparably harmed, creating an enormous and widespread economic hardship. Moreover, the narrow, outdated bridges serve as the only means of evacuation for the vast majority of residents or visitors in case of disaster, and I for one believe many folks would choose to risk peril by staying on Cape versus attempting to cross the Canal trapped in interminable delay. It is simply unacceptable to continue to rely on structures from 1939 to support lives and livelihoods in 2019.

I strongly support the components of the plan that include roadway changes and improvements needed for the construction of two new passenger vehicle bridges.

Also, to the fullest extent possible, the Commission must impress upon the U.S. Army Corps of Engineers the need for an expedited replacement plan for both the Bourne and Sagamore Bridges.

Cordially,
E. James Veara, Vice President, The Davenport Companies

E. James Veara
Vice President & Senior Business Advisor
The Davenport Companies
20 North Main St
South Yarmouth, MA 02664
508-398-2293 Ext 148
Cell# 508-776-9587

THE DAVENPORT COMPANIES

THE DAVENPORT COMPANIES

From: The Davenport Companies, South Yarmouth MA

RE: Cape Cod Commission Regional Transportation Plan Comments

Thank you for the opportunity to express collective support from all our divisions within The Davenport Companies for the Cape Cod Commission's Regional Transportation Plan, and specifically the MassDOT CIP regarding roadway, bikeway and pedestrian pathways in the canal area that will facilitate the Cape Cod Canal bridge replacement or major repair project.

With an employee base of 1,300, we rely heavily on safe, reliable and efficient transportation, not only for our customers, but also for our employees and vendors.

The Davenport Companies specifically support all efforts to replace the aging and deteriorating Bourne and Sagamore Bridges over the Cape Cod Canal.

The two spans are literally the lifeline for carrying people, products and goods essential to daily life on Cape Cod.

We support the MassDOT CIP plan that includes improvements for feeder roads and interchanges on both the mainland and Cape-side of the canal that would be necessary as part of a bridge replacement program.

We also encourage MassDOT to strongly impress upon the U.S. Army Corps of Engineers the need for an expedited replacement plan for both the Bourne and Sagamore Bridges.

Should you need any additional support or information, please contact us using the information below.

Contact: Matt Pitta, Director of Communications
The Davenport Companies
O 508.760.9293 / M 508.962.6747

The Davenport Companies, established in 1956, is now a fourth-generation family-owned business employing over 1,300 people at more than a dozen companies throughout New England. For more information visit www.thedavenportcompanies.com or contact Matt Pitta at (508)-760-9293.

From: Ann Millett
To: Steven Tupper
Subject: RTP Comments
Date: Monday, June 24, 2019 12:35:19 PM

Cape Cod Commission Transportation Program
Attn: Steven Tupper
3225 Main Street
PO Box 226
Barnstable, MA 02630-0226

Dear Mr. Tupper:

Thank you for the opportunity to provide comments on the Cape Cod Commission's Regional Transportation Plan.

The Sagamore and Bourne Bridges are the lifelines for our customers, employees and vendors.

Without a reliable and safe way across the Cape Cod Canal, our ability to do business would be irreparably harmed, creating an enormous and widespread economic hardship.

The impact on the residents of Barnstable, Dukes and Nantucket Counties could be immeasurable.

I have raised my children on Cape Cod and impressed upon them the importance of tourism as it relates to the Cape and wherever they may travel.

I have been fortunate to be able to live, raise a family and work on Cape Cod. Tourism has given me this opportunity and the bridges are a vital component to allow so many of us to be able to do just this.

I would like to express support for the proposed Cape Cod Commissions Regional Transportation Plan (that contains within the MassDOT Cape Cod Canal Regional Transportation Study) and the components of the plan that include roadway changes and improvements needed for the construction of two new passenger vehicle bridges.

I would also particularly encourage the Cape Cod Commission to impress upon the U.S. Army Corps of Engineers the need for an expedited replacement plan for both the Bourne and Sagamore Bridges.

As a region, we are racing against the clock with two bridges that are woefully outdated and inadequate to handle the existing daily traffic flow to and from Cape Cod.

Regards,

Ann Millett
CFO
The Davenport Companies

20 North Main St
South Yarmouth, MA 02664
PH: 508-394-8800 ext 139
http://www.thedavenportccompanies.com/



Please consider the environment before printing this e-mail

From: Marie Oliva
To: Steven Tupper
Subject: RTP
Date: Monday, June 24, 2019 12:25:11 PM

Dear Steven:

The Cape Cod Canal Region Chamber support the inclusion of the Canal Area Transportation Plan study implementation by MassDOT in the Regional Transportation Plan. The region needs a plan for bridge replacement and roadway improvements to maintain our quality of life at existing roadway capacity. We need to make Cape Cod work for its residents, eliminate frequent lane drops and relieve Upper Cape gridlock during bridge maintenance cycles.

Replacement of the bridges will also improve air quality and cues of traffic, remove doubt about freight restrictions due to weight limits, and increase safety and evacuation routes for residents. Evacuation routes is a key factor for both bridges and lends itself to a serious public safety issue if conditions remain are they exist.

We strongly encourage the Cape Cod Commission to include the Canal Area Transportation Plan in the RTP. We appreciate your consideration.

Sincerely,
Marie Oliva
President & CEO
Cape Cod Canal Region Chamber
70 Main Street, Buzzards Bay, MA 02532
P 508-759-6000 X12 F 508-759-6965
moliva@capecodcanalchamber.org
www.capecodcanalchamber.org

Comment 180
From: James Wilson <jtwilson49@gmail.com>
Sent: Monday, June 24, 2019 3:10 PM
To: Steven Tupper
Subject: Bridges
As a permanent resident of Osterville I cannot overstate the importance of two new bridges for the continued happy thriving of life on the Cape. Please do everything possible to get these new bridges expedited. Thank you, Jim Wilson, 2122 Oyster Harbors, Osterville, Ma 02655
Sent from my iPhone

Comment 181
From: Ryan Castle <rcastle@cciaor.com>
Sent: Tuesday, June 25, 2019 11:09 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Ryan Castle
15 Many Oaks Cir
Yarmouth Port, MA 02675
rcastle@cciaor.com

Comment 182
From: Lorraine Casey <lcasey@todayrealestate.com>
Sent: Tuesday, June 25, 2019 11:14 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,

Lorraine Casey
33 Timber Ln
South Dennis, MA 02660
lcasey@todayrealestate.com

Comment 183
From: Donna Ellis <donnaellis@jackconway.com>
Sent: Tuesday, June 25, 2019 11:12 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Donna Ellis
20 John Kenrick Rd
Orleans, MA 02653
donnaellis@jackconway.com

Comment 184
From: Marie Kelly <marie@buyonthecape.com>
Sent: Tuesday, June 25, 2019 11:14 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Marie Kelly
36 Birch Dr
Harwich, MA 02645
marie@buyonthecape.com

Comment 185
From: Peter Blatz <peterablatz@realtor.com>
Sent: Tuesday, June 25, 2019 11:14 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Peter Blatz
54 Mates Way
Brewster, MA 02631
peterablatz@realtor.com

Comment 186
From: Mark Twichell <mtwichell@kinlingrover.com>
Sent: Tuesday, June 25, 2019 11:15 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Mark Twichell
77 Portside Cir
East Falmouth, MA 02536
mtwichell@kinlingrover.com

Comment 187
From: Debra Martin <deb@eradeb.com>
Sent: Tuesday, June 25, 2019 11:15 AM
To: Steven Tupper

Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Debra Martin
PO Box 320
South Yarmouth, MA 02664
deb@eradeb.com

Comment 188
From: Michael Degnan <mjdegnan@realtyexecutives.com>
Sent: Tuesday, June 25, 2019 11:12 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Michael Degnan
5 Russet Rd
Brewster, MA 02631
mjdegnan@realtyexecutives.com

Comment 189
From: Gregg Russo <gregg@longpointrealestate.com>
Sent: Tuesday, June 25, 2019 11:17 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Gregg Russo
PO Box 62
Provincetown, MA 02657
gregg@longpointrealestate.com

Comment 190
From: Beth Condon <bcondon.coldwellbanker@gmail.com>
Sent: Tuesday, June 25, 2019 11:24 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Beth Condon
23 Oak Bluff Rd
Sagamore Beach, MA 02562
bcondon.coldwellbanker@gmail.com

Comment 191
From: Sarah Ciampa <sarahccorealty@gmail.com>
Sent: Tuesday, June 25, 2019 11:25 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Sarah Ciampa
16 Portanimicut Rd
Orleans, MA 02653
sarahccorealty@gmail.com

Comment 192
From: Shane Hoctor <sales@hoctorbuilthomes.com>
Sent: Tuesday, June 25, 2019 11:28 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Shane Hoctor
16 Oxford Rd
East Sandwich, MA 02537
sales@hoctorbuilthomes.com

Comment 193
From: William Cimbrelo <wcimbrelo@gmail.com>
Sent: Tuesday, June 25, 2019 11:20 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depend upon a bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is crucial to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,

William Cimbrelo
17 Sea Robin Rd
Osterville, MA 02655
wcimbrelo@gmail.com

Comment 194
From: Pete Fasano <pete@newcaperealestate.com>
Sent: Tuesday, June 25, 2019 11:29 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Pete Fasano
352 Weir Rd
Yarmouth Port, MA 02675
pete@newcaperealestate.com

Comment 195
From: Annie Blatz <ablatz@kinlingrover.com>
Sent: Tuesday, June 25, 2019 11:25 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Annie Blatz
54 Mates Way
Brewster, MA 02631
ablatz@kinlingrover.com

Comment 196
From: Parke Madden <parke.madden@sothebyshomes.com>
Sent: Tuesday, June 25, 2019 11:27 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Parke Madden
34 Jarves St
Sandwich, MA 02563
parke.madden@sothebyshomes.com

Comment 197
From: Sharon Lucido <Sharon@BourneToSellRealEstate.com>
Sent: Tuesday, June 25, 2019 11:37 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Sharon Lucido
PO Box 1607
Sagamore Beach, MA 02562
Sharon@BourneToSellRealEstate.com

Comment 198
From: janine destefano <janinedestefano@hotmail.com>
Sent: Tuesday, June 25, 2019 11:31 AM
To: Steven Tupper

Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
janine destefano
1004 Route 28
Harwich, MA 02645
janinedestefano@hotmail.com

Comment 199
From: Eva Enos <eva@atlanticbaysir.com>
Sent: Tuesday, June 25, 2019 11:39 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Eva Enos
PO Box 91
Provincetown, MA 02657
eva@atlanticbaysir.com

Comment 200
From: Richard Waystack <rwaystack@jackconway.com>
Sent: Tuesday, June 25, 2019 11:30 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Richard Waystack
PO Box 14
Harwich Port, MA 02646
rwaystack@jackconway.com

Comment 201
From: Joan Witter <joan.witter@compass.com>
Sent: Tuesday, June 25, 2019 11:32 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Joan Witter
PO Box 136
West Hyannisport, MA 02672
joan.witter@compass.com

Comment 202
From: Kent Zelle <kentzelle@gmail.com>
Sent: Tuesday, June 25, 2019 11:38 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Kent Zelle
626 Mayflower St
Duxbury, MA 02332
kentzelle@gmail.com

Comment 203
From: Greg Stone <gstone@lighthouseinn.com>
Sent: Tuesday, June 25, 2019 11:45 AM
To: Steven Tupper
Subject: Support New Canal Bridges
The Bridges are well passed their expected life. They are narrow for todays standards. They are essential to the economy of Cape Cod, if one goes, more than likely, half of the businesses on Cape Cod will likely go bankrupt including our business.
Please replace the bridges now.
Thank you for your consideration.
Sincerely Greg… plus 12 year round employees and 90 seasonal employees, who are counting on you.
Gregory Stone
President
Lighthouse Inn We are Open for our 81st Season
1 Lighthouse Inn Road
West Dennis, Ma 02670
www.LighthouseInn.com

Comment 204
From: Laura Thompson <lthompson@kinlingrover.com>
Sent: Tuesday, June 25, 2019 11:45 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Laura Thompson
16 Oak Bluff Rd
Sagamore Beach, MA 02562

lthompson@kinlingrover.com

Comment 205
From: John Augat <jacaugat@kinlingrover.com>
Sent: Tuesday, June 25, 2019 11:40 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
John Augat
40 Smith Farm Rd
Eastham, MA 02642
jacaugat@kinlingrover.com

Comment 206
From: Michelle Chaisson-Turmelle <mturmelle@todayrealestate.com>
Sent: Tuesday, June 25, 2019 11:43 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Michelle Chaisson-Turmelle
49 Tara Ter
Bourne, MA 02532
mturmelle@todayrealestate.com

Comment 207
From: John Ricotta <john@ricottarealestate.com>

Sent: Tuesday, June 25, 2019 11:41 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commision,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
John Ricotta
1173 Main St
Chatham, MA 02633
john@ricottarealestate.com

Comment 208
From: Pamela Anthony <pam@meganet.net>
Sent: Tuesday, June 25, 2019 11:49 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Pamela Anthony
PO Box 237
Provincetown, MA 02657
pam@meganet.net

Comment 209
From: Lillian LeBeau <tlebeau@kinlingrover.com>
Sent: Tuesday, June 25, 2019 11:52 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Lillian LeBeau
PO Box 380
South Dennis, MA 02660
tlebeau@kinlingrover.com

Comment 210
From: Douglas Azarian <Doug@CapeCodDreamHomes.com>
Sent: Tuesday, June 25, 2019 11:51 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Douglas Azarian
47 Boulder Brook Rd
East Sandwich, MA 02537
Doug@CapeCodDreamHomes.com

Comment 211
From: Aleta Azarian <aazarian@kinlingrover.com>
Sent: Tuesday, June 25, 2019 11:54 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Aleta Azarian
47 Boulder Brook Rd
East Sandwich, MA 02537
aazarian@kinlingrover.com

Comment 212
From: Andrea Maynard <andrea@exitcaperealty.com>
Sent: Tuesday, June 25, 2019 11:59 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Andrea Maynard
105 Monhegan Rd
East Falmouth, MA 02536
andrea@exitcaperealty.com

Comment 213
From: Beverly Wall-Cedrone <beverly.cedrone@sothebyshomes.com>
Sent: Tuesday, June 25, 2019 11:57 AM
To: Steven Tupper
Subject: RTp
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Beverly Wall-Cedrone
35 Carol Ave
East Falmouth, MA 02536
beverly.cedrone@sothebyshomes.com

Comment 214
From: Paula Dadmun <paula@ccorealty.com>
Sent: Tuesday, June 25, 2019 12:07 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Paula Dadmun
3 Trout Brook Rd
Harwich, MA 02645
paula@ccorealty.com

Comment 215
From: Gary Livingston <GLivingston@kinlingrover.com>
Sent: Tuesday, June 25, 2019 12:04 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,

Gary Livingston
44 McGee Dr
Hyannis, MA 02601
GLivingston@kinlingrover.com

Comment 216
From: Evelyn Salvadore <esalvadore@kinlingrover.com>
Sent: Tuesday, June 25, 2019 12:00 PM
To: Steven Tupper
Subject: RTP

Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

Evelyn Salvadore
48 Old Meadow Rd
Brewster, MA 02631
esalvadore@kinlingrover.com

Comment 216
From: Stephen Silva <sscape1@gmail.com>
Sent: Tuesday, June 25, 2019 12:18 PM
To: Steven Tupper
Subject: RTP

Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

Stephen Silva
28 Frost Ave
West Yarmouth, MA 02673
sscape1@gmail.com

Comment 218
From: Lori Jurkowski <ljurkowski@kinlingrover.com>
Sent: Tuesday, June 25, 2019 12:14 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Lori Jurkowski
103 Woodland Way
North Chatham, MA 02650
ljurkowski@kinlingrover.com

Comment 219
From: Beverly Comeau <bcomeau@kinlingrover.com>
Sent: Tuesday, June 25, 2019 12:14 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access NOT ONLY TO Cape Cod BUT FOR OUR CURRENT RESIDENTS TO GET TO THEIR JOBS ON THE MAINLAND.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Beverly Comeau
28 Grove St
Sandwich, MA 02563
bcomeau@kinlingrover.com

Comment 220
From: Deborah McDevitt Hays <debbie@mcdevittrealtors.com>
Sent: Tuesday, June 25, 2019 12:25 PM

To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Deborah McDevitt Hays
150 Great Western Rd
South Yarmouth, MA 02664
debbie@mcdevittrealtors.com

Comment 221
From: Gregory Murphy <gregory.murphy@raveis.com>
Sent: Tuesday, June 25, 2019 12:34 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Gregory Murphy
20 3rd St
Harwich, MA 02645
gregory.murphy@raveis.com

Comment 222
From: Steve Seaver <sseaver@kinlingrover.com>
Sent: Tuesday, June 25, 2019 12:34 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Steve Seaver
1990 Main St
Brewster, MA 02631
sseaver@kinlingrover.com

Comment 223
From: Jennifer Peto <jpeto@todayrealestate.com>
Sent: Tuesday, June 25, 2019 12:37 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Jennifer Peto
132 Wintergreen Ln
Brewster, MA 02631
jpeto@todayrealestate.com

Comment 224
From: Richard Eble <deble@capecod.net>
Sent: Tuesday, June 25, 2019 12:42 PM
To: Steven Tupper
Subject: Replace the very dangerous Cape Cod bridges
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Richard Eble
130 Rock Harbor Rd
Orleans, MA 02653
deble@capecod.net

Comment 225
From: David DePasquale <daviddepo@hotmail.com>
Sent: Tuesday, June 25, 2019 12:42 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
David DePasquale
115 Perch Pond Dr
Chatham, MA 02633
daviddepo@hotmail.com

Comment 226
From: Wendy Diehl <user@votervoice.net>
Sent: Tuesday, June 25, 2019 1:03 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Wendy Diehl
97 Chatham Rd
Harwich, MA 02645
wendiehl@yahoo.com

Comment 227
From: marianne harris <mbharris@kinlingrover.com>
Sent: Tuesday, June 25, 2019 1:03 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
marianne harris
211 Countryside Dr
Chatham, MA 02633
mbharris@kinlingrover.com

Comment 228
From: Leslie Van Ness <lvanness@kinlingrover.com>
Sent: Tuesday, June 25, 2019 1:08 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,

Leslie Van Ness
105 Yankee Dr
Brewster, MA 02631
lvanness@kinlingrover.com

Comment 229
From: Karen Jaworski <karen@capecodera.com>
Sent: Tuesday, June 25, 2019 1:15 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Karen Jaworski
113 Bank St
Harwich Port, MA 02646
karen@capecodera.com

Comment 230
From: Jacquelyn Casey <jacquie.casey@raveis.com>
Sent: Tuesday, June 25, 2019 1:11 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Jacquelyn Casey
167 Orleans Rd
North Chatham, MA 02650
jacquie.casey@raveis.com

Comment 231
From: Joe Arnao <Joe.arnao@raveis.com>
Sent: Tuesday, June 25, 2019 1:15 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I've been a member of the Sandwich Chambers BOD and the Sandwich Economic Initiative Committee as well as a business owner on Cape
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Joe Arnao
37 Nauset St
Sandwich, MA 02563
Joe.arnao@raveis.com

Comment 232
From: David Morin <david@capecodera.com>
Sent: Tuesday, June 25, 2019 1:17 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
David Morin
229 Saddler Ln
West Barnstable, MA 02668
david@capecodera.com

Comment 233
From: Jack Driscoll <jdriscoll@kinlingrover.com>
Sent: Tuesday, June 25, 2019 1:12 PM

To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Jack Driscoll
22 Clipper Ln
Falmouth, MA 02540
jdriscoll@kinlingrover.com

Comment 234
From: Cynthia Harrington <charrington@robertpaul.com>
Sent: Tuesday, June 25, 2019 1:22 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Cynthia Harrington
PO Box 2045
Dennis, MA 02638
charrington@robertpaul.com

Comment 235
From: Kim Terrio <kimterrio@capecodjmw.com>
Sent: Tuesday, June 25, 2019 1:23 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Kim Terrio
58 Pine St
Yarmouth Port, MA 02675
kimterrio@capecodjmw.com

Comment 236
From: Edward Kozak <eikozak1221@gmail.com>
Sent: Tuesday, June 25, 2019 1:35 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replaice the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Edward Kozak
20 Dasilva Dr
East Falmouth, MA 02536
eikozak1221@gmail.com

Comment 237
From: Michael Hall <michaelhallrealtor@me.com>
Sent: Tuesday, June 25, 2019 1:36 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Michael Hall
PO Box 1023
Provincetown, MA 02657
michaelhallrealtor@me.com

Comment 238
From: David Shortsleeve <davidshortsleeve@gmail.com>
Sent: Tuesday, June 25, 2019 1:46 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
David Shortsleeve
402 Browning Ln Apt Lng5tr55t
Worcester, MA 01609
davidshortsleeve@gmail.com

Comment 239
From: Christopher Briggs <cbriggs@kinlingrover.com>
Sent: Tuesday, June 25, 2019 1:41 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Christopher Briggs
2 Restabit Rd
Harwich, MA 02645
cbriggs@kinlingrover.com

Comment 240
From: Cynthia Blum <cindy.blum@me.com>
Sent: Tuesday, June 25, 2019 1:59 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Cynthia Blum
695 Nauset Rd
Eastham, MA 02642
cindy.blum@me.com

Comment 241
From: Keith Bradley <keith@keithwbradley.com>
Sent: Tuesday, June 25, 2019 1:56 PM
To: Steven Tupper
Subject: Regional Transportation Plan
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,

Keith Bradley
PO Box 203
West Chatham, MA 02669
keith@keithwbradley.com

Comment 242
From: Bruce Cook <bcook@kinlingrover.com>
Sent: Tuesday, June 25, 2019 2:00 PM
To: Steven Tupper
Subject: RTP

Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

Bruce Cook
19 W Woods
Yarmouth Port, MA 02675
bcook@kinlingrover.com

Comment 243
From: Laura Usher <laurausher@comcast.net>
Sent: Tuesday, June 25, 2019 2:12 PM
To: Steven Tupper
Subject: RTP

Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

Laura Usher
631 Tubman Rd
Brewster, MA 02631
laurausher@comcast.net

Comment 244
From: Kathleen Deerman <kathydeerman@robertpaul.com>
Sent: Tuesday, June 25, 2019 2:13 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Kathleen Deerman
38 Blossom Ave Apt A
Osterville, MA 02655
kathydeerman@robertpaul.com

Comment 245
From: Mary Ellen Goodwin <maryellen963@hotmail.com>
Sent: Tuesday, June 25, 2019 2:19 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Mary Ellen Goodwin
38 Wequaquet Ln
Centerville, MA 02632
maryellen963@hotmail.com

Comment 246
From: Nancy Mara <n_mara@msn.com>
Sent: Tuesday, June 25, 2019 2:24 PM
To: Steven Tupper

Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Nancy Mara
PO Box 816
Cataumet, MA 02534
n_mara@msn.com

Comment 247
From: Dennis Falvey <dfalvey@todayrealestate.com>
Sent: Tuesday, June 25, 2019 2:27 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Dennis Falvey
98 Longfellow Dr
Centerville, MA 02632
dfalvey@todayrealestate.com

Comment 248
From: Margaret Nye <nyep@raveisre.com>
Sent: Tuesday, June 25, 2019 2:21 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Margaret Nye
96 Uncle Barneys Rd
West Dennis, MA 02670
nyep@raveisre.com

Comment 249
From: Amanda Lucido <Amanda@Bournetosellrealestate.com>
Sent: Tuesday, June 25, 2019 2:30 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Amanda Lucido
4 Dover Ln
Buzzards Bay, MA 02532
Amanda@Bournetosellrealestate.com

Comment 250
From: David Parrella <bhvi@comcast.net>
Sent: Tuesday, June 25, 2019 2:34 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
David Parrella
194 Washington Ave
Osterville, MA 02655
bhvi@comcast.net

Comment 251
From: Philip Rodriguez <philip.rodriguez@exprealty.com>
Sent: Tuesday, June 25, 2019 2:38 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Philip Rodriguez
35 Greenville Dr
Forestdale, MA 02644
philip.rodriguez@exprealty.com

Comment 252
From: Rob Miksis <r.miksis@weichertdp.com>
Sent: Tuesday, June 25, 2019 2:46 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,

Rob Miksis
25 Matthias Ln
Barnstable, MA 02630
r.miksis@weichertdp.com

Comment 253
From: Riccardo Eblini <riccardo.eblini@gmail.com>
Sent: Tuesday, June 25, 2019 2:42 PM
To: Steven Tupper
Subject: Replace our bridges
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Riccardo Eblini
130 Rock Harbor Rd
Orleans, MA 02653
riccardo.eblini@gmail.com

Comment 254
From: Cathleen Bearce <cbearce@kinlingrover.com>
Sent: Tuesday, June 25, 2019 2:51 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Cathleen Bearce
205 Chester St
North Falmouth, MA 02556
cbearce@kinlingrover.com

Comment 255
From: Gregory Kiely <greg.kiely@sothebyshomes.com>
Sent: Tuesday, June 25, 2019 2:51 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Gregory Kiely
38 Evelyn Cir
Centerville, MA 02632
greg.kiely@sothebyshomes.com

Comment 256
From: Suzanne Songer <suzanne.songer22@gmail.com>
Sent: Tuesday, June 25, 2019 3:00 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Suzanne Songer
12 Pin Oak Dr
East Sandwich, MA 02537
suzanne.songer22@gmail.com

Comment 257
From: David Ahern <daystarpro@comcast.net>
Sent: Tuesday, June 25, 2019 3:05 PM
To: Steven Tupper

Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
David Ahern
67 Alfred Metcalf Dr
South Dennis, MA 02660
daystarpro@comcast.net

Comment 258
From: Pamela Peters <pampetersrealtor@gmail.com>
Sent: Tuesday, June 25, 2019 3:14 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Pamela Peters
PO Box 63
West Falmouth, MA 02574
pampetersrealtor@gmail.com

Comment 259
From: Linda Cirrone <lcirrone@kinlingrover.com>
Sent: Tuesday, June 25, 2019 3:10 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Linda Cirrone
PO Box 497
Osterville, MA 02655
lcirrone@kinlingrover.com

Comment 260
From: Douglas Payson <dpayson@kinlingrover.com>
Sent: Tuesday, June 25, 2019 3:11 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Douglas Payson
110 Commerce Rd
Barnstable, MA 02630
dpayson@kinlingrover.com

Comment 261
From: Denise Coolidge <dcoolidge@kinlingrover.com>
Sent: Tuesday, June 25, 2019 3:25 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Denise Coolidge
18 Damaris Dr
Yarmouth Port, MA 02675
dcoolidge@kinlingrover.com

Comment 262
From: Beth McCartney <McCartneyRES@comcast.net>
Sent: Tuesday, June 25, 2019 3:36 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Beth McCartney
135 Portanimicut Rd
Orleans, MA 02653
McCartneyRES@comcast.net

Comment 263
From: Kevin Cosgrove <KCosgrove@kinlingrover.com>
Sent: Tuesday, June 25, 2019 3:40 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,

Kevin Cosgrove
28 Crowell Rd
Sandwich, MA 02563
KCosgrove@kinlingrover.com

Comment 264
From: Ann Lynch <alynch@kinlingrover.com>
Sent: Tuesday, June 25, 2019 3:52 PM
To: Steven Tupper
Subject: RTP

Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

Ann Lynch
62 Bay Rd
North Falmouth, MA 02556
alynch@kinlingrover.com

Comment 265
From: Betty Allen <enlind@comcast.net>
Sent: Tuesday, June 25, 2019 4:37 PM
To: Steven Tupper
Subject: RTP

Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

Betty Allen
PO Box 427
East Sandwich, MA 02537
enlind@comcast.net

Comment 266
From: Mary O'Donnell <Mary.odonnell@gibsonsir.com>
Sent: Tuesday, June 25, 2019 4:54 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Mary O'Donnell
1 HATH A WAY ST
WEST HARWICH, MA 02671
Mary.odonnell@gibsonsir.com

Comment 267
From: Kristan Cousins <user@votervoice.net>
Sent: Tuesday, June 25, 2019 4:58 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Kristan Cousins
24 Grace Ct
East Falmouth, MA 02536
kristancousins@yahoo.com

Comment 268
From: Mark Miklavic <mmiklavic@robertpaul.com>
Sent: Tuesday, June 25, 2019 5:18 PM
To: Steven Tupper

Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Mark Miklavic
144 Fisk St
West Dennis, MA 02670
mmiklavic@robertpaul.com

Comment 269
From: Christopher Richards <ce_richards@comcast.net>
Sent: Tuesday, June 25, 2019 5:21 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Christopher Richards
1 Hill Wood Way
East Sandwich, MA 02537
ce_richards@comcast.net

Comment 270
From: Farrah DiPietro <farrah@starboardrealestate.com>
Sent: Tuesday, June 25, 2019 5:20 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Farrah DiPietro
3 Neshobe Rd
Mashpee, MA 02649
farrah@starboardrealestate.com

Comment 271
From: James Russo <info@easthamchamber.com>
Sent: Tuesday, June 25, 2019 5:52 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
James Russo
45 Old Orchard Rd
Eastham, MA 02642
info@easthamchamber.com

Comment 272
From: Kerry Duggan <kerry.duggan@sothebyshomes.com>
Sent: Tuesday, June 25, 2019 6:29 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.

Thank you for your consideration.
Sincerely,
Kerry Duggan
382 Woods Hole Rd
Falmouth, MA 02540
kerry.duggan@sothebyshomes.com

Comment 273
From: Gerry Coughlan <gerrycoughlan@capecodjmw.com>
Sent: Tuesday, June 25, 2019 7:05 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Gerry Coughlan
30 Desert Sands Ln
Yarmouth Port, MA 02675
gerrycoughlan@capecodjmw.com

Comment 274
From: Denise Puffer <user@votervoice.net>
Sent: Tuesday, June 25, 2019 7:33 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Denise Puffer
25 Avery Ave
Wellfleet, MA 02667

dpuffer52@aol.com

Comment 275
From: Margo Pisacano <Margo@MargoSells.com>
Sent: Tuesday, June 25, 2019 7:41 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Margo Pisacano
73 Harbor Rd
Hyannis, MA 02601
Margo@MargoSells.com

Comment 276
From: Sarah Martin <slapsley@kinlingrover.com>
Sent: Tuesday, June 25, 2019 8:40 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Sarah Martin
42 Oak Hill Rd
Hyannis, MA 02601
slapsley@kinlingrover.com

Comment 277
From: Steven Baty <stevebatyrealestate@gmail.com>

Sent: Tuesday, June 25, 2019 8:55 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Steven Baty
145 Stony Brook Rd
Brewster, MA 02631
stevebatyrealestate@gmail.com

Comment 278
From: Sonja Fellman <sfellman@kinlingrover.com>
Sent: Tuesday, June 25, 2019 11:29 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Sonja Fellman
1 Almira Rd
South Yarmouth, MA 02664
sfellman@kinlingrover.com

Comment 279
From: Sheila Dishman <sheilastate@comcast.net>
Sent: Wednesday, June 26, 2019 7:11 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Sheila Dishman
1676 Santuit Newtown Rd
Cotuit, MA 02635
sheilastate@comcast.net

Comment 280
From: Susan Chadwick <schadwick@kinlingrover.com>
Sent: Wednesday, June 26, 2019 7:32 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Susan Chadwick
130 Childs River Rd
East Falmouth, MA 02536
schadwick@kinlingrover.com

Comment 281
From: Nora Grant <nrg@randatlantic.com>
Sent: Wednesday, June 26, 2019 7:40 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Nora Grant
PO Box 132
Cataumet, MA 02534
nrg@randatlantic.com

Comment 282
From: Cindy Muzyka <cmuzyka@kinlingrover.com>
Sent: Wednesday, June 26, 2019 8:03 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Cindy Muzyka
55 Randolph Rd
Yarmouth Port, MA 02675
cmuzyka@kinlingrover.com

Comment 283
From: Mark Philie <mphilie@kinlingrover.com>
Sent: Wednesday, June 26, 2019 8:17 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Mark Philie
5 Crestview Drive Ext
East Sandwich, MA 02537
mphilie@kinlingrover.com

Comment 284
From: Jan Minaudo <jminaudo@c21ne.com>
Sent: Wednesday, June 26, 2019 8:45 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Jan Minaudo
PO Box 35
Cataumet, MA 02534
jminaudo@c21ne.com

Comment 285
From: Marissa Cyr <mcyr@cciaor.com>
Sent: Wednesday, June 26, 2019 8:46 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,

Marissa Cyr
22 Mid Tech Dr
West Yarmouth, MA 02673
mcyr@cciaor.com

Comment 286
From: Bruce Raymond <Bruce.Raymond@Raveis.com>
Sent: Wednesday, June 26, 2019 10:44 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Bruce Raymond
42 Forest Gate
Yarmouth Port, MA 02675
Bruce.Raymond@Raveis.com

Comment 287
From: Carole Swartz <cswartz@kinlingrover.com>
Sent: Wednesday, June 26, 2019 2:31 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Carole Swartz
223 Rolling Hitch Rd
Centerville, MA 02632
cswartz@kinlingrover.com

Comment 288
From: Mark Halloran <boatz@comcast.net>
Sent: Wednesday, June 26, 2019 7:45 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Mark Halloran
342 Wild Harbor Rd
North Falmouth, MA 02556
boatz@comcast.net

Comment 289
From: Lisa Parenteau <lisa@lisasellscapecod.com>
Sent: Wednesday, June 26, 2019 9:42 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Lisa Parenteau
28 Gunters Ln
Mashpee, MA 02649
lisa@lisasellscapecod.com

Comment 290
From: Jeremiah Perry <user@votervoice.net>
Sent: Wednesday, June 26, 2019 11:03 PM
To: Steven Tupper

Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Jeremiah Perry
PO Box 1957
Sandwich, MA 02563
jeremiah112185@yahoo.com

Comment 291
From: Dwight Evans <user@votervoice.net>
Sent: Thursday, June 27, 2019 6:52 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Dwight Evans
33 Columbus Dr
East Falmouth, MA 02536
devans33@aol.com

Comment 292
From: Trudi Burrows <trudi@pineacresrealty.com>
Sent: Thursday, June 27, 2019 9:19 AM
To: Steven Tupper
Subject: Sagamore Bridge
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Trudi Burrows
116 Quasons Path
Brewster, MA 02631
trudi@pineacresrealty.com

Comment 293
From: leonard Davis <cotuit28@gmail.com>
Sent: Thursday, June 27, 2019 10:27 AM
To: Steven Tupper
Subject: bridges
New bridges are needed!!

Comment 294
From: Ralph Secino <Ralph.Secino@raveis.com>
Sent: Thursday, June 27, 2019 10:20 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Ralph Secino
384 Cotuit Bay Dr
Cotuit, MA 02635
Ralph.Secino@raveis.com

Comment 295
From: Hayley Nickerson <hnickerson@kinlingrover.com>
Sent: Thursday, June 27, 2019 11:30 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Hayley Nickerson
9 Essex Way
Brewster, MA 02631
hnickerson@kinlingrover.com

Comment 296
From: Steven Baty <stevebatyrealestate@gmail.com>
Sent: Thursday, June 27, 2019 11:59 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Steven Baty
145 Stony Brook Rd
Brewster, MA 02631
stevebatyrealestate@gmail.com

Comment 297
From: Gail Ciampa <user@votervoice.net>
Sent: Thursday, June 27, 2019 12:10 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Gail Ciampa
8 Rockville Ave
East Falmouth, MA 02536
gailciampa@aol.com

Comment 298
From: Nichole Willey <nicholewilley@kw.com>
Sent: Thursday, June 27, 2019 12:41 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Nichole Willey
19 Captain Crocker Rd
South Yarmouth, MA 02664
nicholewilley@kw.com

Comment 299
From: Suzanne Bilodeau <sagamoreinncapecod@yahoo.com>
Sent: Thursday, June 27, 2019 5:14 PM
To: Steven Tupper
Subject: Canal Area Transportation Plan
I support the inclusion of the Canal Area Transportation Plan study implementation by Mass DOT in the Regional Transportation Plan. We need bridge replacement and roadway improvements to maintain our quality of life at existing roadway capacity. We need to make Cape Cod work for its residents by eliminating frequent lane drops, relieve Upper Cape gridlock during bridge maintenance cycles. We have owned the Sagamore Inn Restaurant for ten years and the bridge work has truly affected our business each year. These new changes are a must.
Suzanne Bilodeau
Suzanne L. Bilodeau
Owner
Sagamore Inn Restaurant
1131 Sandwich Rd., Sagamore, MA
(508)-888-9707

Comment 300
From: Simon Evans <sgevans65@gmail.com>
Sent: Thursday, June 27, 2019 6:52 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Simon Evans
1 Panorama Point Dr
Harwich, MA 02645
sgevans65@gmail.com

Comment 301
From: Carole Spear <caspear@capecod.net>
Sent: Thursday, June 27, 2019 7:34 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Carole Spear
405 Sandwich Rd
East Falmouth, MA 02536
caspear@capecod.net

Comment 302
From: Paul Chapin <user@votervoice.net>
Sent: Friday, June 28, 2019 7:56 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges

Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Paul Chapin
45 Edgewater Rd
Mashpee, MA 02649
cplumirish@aol.com

Comment 303
From: John Morash <jmorash128@gmail.com>
Sent: Friday, June 28, 2019 9:04 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
John Morash
128 Union St
Yarmouth Port, MA 02675
jmorash128@gmail.com

Comment 304
From: Mary Ann Affsa <mary1516@msn.com>
Sent: Friday, June 28, 2019 11:44 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Mary Ann Affsa
6 Narragansett St
Teaticket, MA 02536
mary1516@msn.com

Comment 305
From: Vijay Dewan <user@votervoice.net>
Sent: Friday, June 28, 2019 12:33 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Vijay Dewan
354 Lake Shore Dr
Marstons Mills, MA 02648
vjdewan@aol.com

Comment 306
From: Barbara Wojcik <BLWrealtor@hotmail.com>
Sent: Friday, June 28, 2019 9:09 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.

Sincerely,
Barbara Wojcik
PO Box 35
North Truro, MA 02652
BLWrealtor@hotmail.com

Comment 307
From: Gertrude Crowley <trudybull@comcast.net>
Sent: Friday, June 28, 2019 9:21 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Gertrude Crowley
60 Odonnell Ave
East Falmouth, MA 02536
trudybull@comcast.net

Comment 308
From: Stephen Porritt <victorypride@gmail.com>
Sent: Saturday, June 29, 2019 6:26 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Stephen Porritt
42 Windward Way
North Falmouth, MA 02556
victorypride@gmail.com

Comment 309
From: Ken Lyman <capecodken9@comcast.net>
Sent: Sunday, June 30, 2019 10:06 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Ken Lyman
9 Kencomsett Cir
Yarmouth Port, MA 02675
capecodken9@comcast.net

Comment 310
From: Peggy Crespo <onchathamtime@gmail.com>
Sent: Sunday, June 30, 2019 8:34 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Peggy Crespo
20 Eddie Ln
Chatham, MA 02633
onchathamtime@gmail.com

Comment 311
From: Deborah MacPhee <capegardengirl@comcast.net>
Sent: Sunday, June 30, 2019 9:27 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Deborah MacPhee
7 Wildrose Ter
South Yarmouth, MA 02664
capegardengirl@comcast.net

Comment 312
From: Barbara Felton <bwfelton@comcast.net>
Sent: Monday, July 1, 2019 8:34 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Barbara Felton
9 Jans Path
Harwich, MA 02645
bwfelton@comcast.net

Comment 313
From: Jean O'Brien <jobrien@kinlingrover.com>
Sent: Monday, July 1, 2019 9:48 AM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Jean O'Brien
256 Shorewood Dr
East Falmouth, MA 02536
jobrien@kinlingrover.com

Comment 314
From: John Nelson <revjwn@comcast.net>
Sent: Monday, July 1, 2019 3:22 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
John Nelson
803 Commercial St
Provincetown, MA 02657
revjwn@comcast.net

Comment 315
From: Ray Castellano <kapekodder@comcast.net>
Sent: Monday, July 1, 2019 4:09 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Ray Castellano
16 Keith Ln Apt Brewster

Brewster, MA 02631
kapekodder@comcast.net

Comment 316
From: Eleanor McLaughlin <empm@comcast.net>
Sent: Monday, July 1, 2019 7:43 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges

Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,
Eleanor McLaughlin
177 Scudder Rd
Osterville, MA 02655
empm@comcast.net

Comment 317
From: Debi Yorke <debiy17@comcast.net>
Sent: Monday, July 1, 2019 7:47 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges

Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,
Debi Yorke
17 Widow Coombs Walk
Sandwich, MA 02563
debiy17@comcast.net

Comment 318
From: Robert Cyrklis <rcyrklis@comcast.net>
Sent: Tuesday, July 2, 2019 1:02 AM

To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Robert Cyrklis
10 Pierre Vernier Dr
Sandwich, MA 02563
rcyrklis@comcast.net

Comment 319
From: Laura Clements <laura@coveroadrealestate.com>
Sent: Tuesday, July 2, 2019 10:29 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Laura Clements
128 Seaview Rd
Brewster, MA 02631
laura@coveroadrealestate.com

Comment 320
From: Deb Costa <debcosta21@gmail.com>
Sent: Tuesday, July 2, 2019 10:30 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Deb Costa
156 Braley Jenkins Rd
Centerville, MA 02632
debcosta21@gmail.com

Comment 321
From: judith chauvin <jchauvin@comcast.net>
Sent: Tuesday, July 2, 2019 10:52 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
judith chauvin
55 Windsor Rd
Sandwich, MA 02563
jchauvin@comcast.net

Comment 322
From: Sally Mousseau <semousse@gmail.com>
Sent: Tuesday, July 2, 2019 12:09 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,

Sally Mousseau
24 Bakers Pond Rd
South Dennis, MA 02660
semousse@gmail.com

Comment 323
From: James St.Amand, Mr <jls519@hotmail.com>
Sent: Tuesday, July 2, 2019 4:37 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
James St.Amand
235 Great Marsh Rd
Centerville, MA 02632
jls519@hotmail.com

Comment 324
From: Tracey Oringer <user@votervoice.net>
Sent: Wednesday, July 3, 2019 10:32 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Tracey Oringer
49 Atwood Cir
Brewster, MA 02631
traceyoringer@yahoo.com

Comment 325

From: Jan Macallister <jan.macallister@sothebyshomes.com>
Sent: Wednesday, July 3, 2019 11:39 AM
To: Steven Tupper
Subject: RTP

Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

Jan Macallister
87 Pond St
Osterville, MA 02655
jan.macallister@sothebyshomes.com

Comment 326

From: Kerrie Marzot <kerrie.marzot@sothebyshomes.com>
Sent: Wednesday, July 3, 2019 11:40 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges

Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

Kerrie Marzot
PO Box 629
Falmouth, MA 02541
kerrie.marzot@sothebyshomes.com

Comment 327

From: Marcus Nese <Marcus.Nese@SothebysHomes.com>
Sent: Wednesday, July 3, 2019 11:46 AM
To: Steven Tupper
Subject: RTP

Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Marcus Nese
34 Milne Rd
Osterville, MA 02655
Marcus.Nese@SothebysHomes.com

Comment 328
From: Daren Marvin <daren.marvin@sothebyshomes.com>
Sent: Wednesday, July 3, 2019 12:09 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Daren Marvin
210 Seapit Rd
East Falmouth, MA 02536
daren.marvin@sothebyshomes.com

Comment 329
From: Judith Spang <judy.spang@sothebyshomes.com>
Sent: Wednesday, July 3, 2019 12:15 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Judith Spang
19 Loren Rd
North Falmouth, MA 02556
judy.spang@sothebyshomes.com

Comment 330
From: Bryan Jesienski <bryanjesienski@gmail.com>
Sent: Wednesday, July 3, 2019 12:20 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Bryan Jesienski
2 Solar Way
East Falmouth, MA 02536
bryanjesienski@gmail.com

Comment 331
From: Susan Crasnick <susan.crasnick@sothebyshomes.com>
Sent: Wednesday, July 3, 2019 12:22 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Susan Crasnick

58 Blanid Rd
Osterville, MA 02655
susan.crasnick@sothebyshomes.com

Comment 332
From: Colleen Riley <colleen.riley@sothebyshomes.com>
Sent: Wednesday, July 3, 2019 12:34 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Colleen Riley
64 Surrey Ln
Barnstable, MA 02630
colleen.riley@sothebyshomes.com

Comment 333
From: Stephanie Souza <stephanie.souza@sothebyshomes.com>
Sent: Wednesday, July 3, 2019 12:36 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Stephanie Souza
90 Bonnie Ln
East Falmouth, MA 02536
stephanie.souza@sothebyshomes.com

Comment 334

From: Derek McDonald <derek.mcd@icloud.com>
Sent: Wednesday, July 3, 2019 12:38 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges

Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

Derek McDonald
38 Place Rd
Falmouth, MA 02540
derek.mcd@icloud.com

Comment 335

From: David Iseman <david@soldoncapecod.com>
Sent: Wednesday, July 3, 2019 12:49 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges

Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

David Iseman
64 Pelican Ln Apt B
Falmouth, MA 02540
david@soldoncapecod.com

Comment 336

From: Derek McDonald <derek.mcd@icloud.com>
Sent: Wednesday, July 3, 2019 12:40 PM
To: Steven Tupper
Subject: RTP

Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Derek McDonald
38 Place Rd
Falmouth, MA 02540
derek.mcd@icloud.com

Comment 337
From: Margaret Gifford <margaret.gifford@sothebyshomes.com>
Sent: Wednesday, July 3, 2019 1:30 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Margaret Gifford
31 Woodland Trl
Teaticket, MA 02536
margaret.gifford@sothebyshomes.com

Comment 338
From: Shauna Menard <shauna.callinan@sothebyshomes.com>
Sent: Wednesday, July 3, 2019 1:49 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Shauna Menard
445 Main St
Falmouth, MA 02540
shauna.callinan@sothebyshomes.com

Comment 339
From: Kevin Gagnon <kevin.gagnon@sothebyshomes.com>
Sent: Wednesday, July 3, 2019 2:31 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Kevin Gagnon
56 Parsons Ln
East Falmouth, MA 02536
kevin.gagnon@sothebyshomes.com

Comment 340
From: Emily Flax <emilyflax1@me.com>
Sent: Thursday, July 4, 2019 7:09 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Emily Flax

4 Nickerson St
Provincetown, MA 02657
emilyflax1@me.com

Comment 341
From: Barbara Felton <bwfelton@comcast.net>
Sent: Thursday, July 4, 2019 9:08 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges

Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,
Barbara Felton
9 Jans Path
Harwich, MA 02645
bwfelton@comcast.net

Comment 342
From: Mr. & Mrs. David Erickson <davidmerickson@gmail.com>
Sent: Thursday, July 4, 2019 12:26 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges

Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,
David Erickson
168 Yankee Dr
Brewster, MA 02631
davidmerickson@gmail.com

Comment 343
From: Joy Wordell <natsjoy@comcast.net>

Sent: Thursday, July 4, 2019 2:54 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Joy Wordell
358 Cockle Cove Rd
South Chatham, MA 02659
natsjoy@comcast.net

Comment 344
From: Jean Marino <jlmarino42@gmail.com>
Sent: Friday, July 5, 2019 7:22 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Jean Marino
111 Monomoy Cir
Centerville, MA 02632
jlmarino42@gmail.com

Comment 345
From: Linae Argento <user@votervoice.net>
Sent: Friday, July 5, 2019 9:50 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Linae Argento
174 Queen St
Falmouth, MA 02540
linaejp@yahoo.com

Comment 346
From: Jada Norman <jada.norman@sothebyshomes.com>
Sent: Friday, July 5, 2019 2:30 PM
To: Steven Tupper
Subject: RTP
Dear Cape Commission,
I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Jada Norman
251 Surf Dr
Mashpee, MA 02649
jada.norman@sothebyshomes.com

Comment 346
From: Kevin Brown <kevinmbrown@comcast.net>
Sent: Saturday, July 6, 2019 9:44 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.

Sincerely,
Kevin Brown
9 Equestrian Ln
East Falmouth, MA 02536
kevinmbrown@comcast.net

Comment 348
From: Whitney McNamara <whit.mcn@gmail.com>
Sent: Sunday, July 7, 2019 11:30 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges

Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,
Whitney McNamara
800 Bearses Way Apt 1Wd
Hyannis, MA 02601
whit.mcn@gmail.com

Comment 349
From: Maureen MacKenzie <nana.mackenzie@me.com>
Sent: Sunday, July 7, 2019 12:21 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges

Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,
Maureen MacKenzie
161 Pond View Dr
Brewster, MA 02631
nana.mackenzie@me.com

Comment 350
From: Paul Esmond <paulesmond@comcast.net>
Sent: Sunday, July 7, 2019 4:38 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Paul Esmond
8 Dogwood Dr
Forestdale, MA 02644
paulesmond@comcast.net

Comment 351
From: Gregory Kiely <grkiely@gmail.com>
Sent: Sunday, July 7, 2019 9:33 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Gregory Kiely
38 Evelyn Cir
Centerville, MA 02632
grkiely@gmail.com

Comment 352
From: Jodi Freedman <jodi.freedman@sothebyshomes.com>
Sent: Sunday, July 7, 2019 9:40 PM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,

I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Jodi Freedman
96 Woods Hole Rd
Falmouth, MA 02540
jodi.freedman@sothebyshomes.com

Comment 353
From: Brian Baker <bbaker1@hvc.rr.com>
Sent: Monday, July 8, 2019 6:30 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Brian Baker
60 Robinson Rd
Falmouth, MA 02540
bbaker1@hvc.rr.com

Comment 354
From: Joshua Shapiro <joshuashapiro105@gmail.com>
Sent: Monday, July 8, 2019 7:39 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Joshua Shapiro
31 Naushon Cir
Falmouth, MA 02540
joshuashapiro105@gmail.com

Comment 355
From: Pamela Chmielinski <pamela.chmielinski@sothebyshomes.com>
Sent: Monday, July 8, 2019 8:34 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Pamela Chmielinski
9 Old County Rd
Pocasset, MA 02559
pamela.chmielinski@sothebyshomes.com

Comment 356
From: David Hollett <davehollett@comcast.net>
Sent: Monday, July 8, 2019 9:29 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences.
It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
David Hollett
1 Luscombe Ln

Sandwich, MA 02563
davehollett@comcast.net

Comment 357
From: James Linnehan <litanymail@gmail.com>
Sent: Monday, July 8, 2019 9:58 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
James Linnehan
49 Heather Ln
Centerville, MA 02632
litanymail@gmail.com

Comment 358
From: Ian Brumberger <iandavid02302@gmail.com>
Sent: Monday, July 8, 2019 10:04 AM
To: Steven Tupper
Subject: Take Action to Fix the Cape Cod Bridges
Dear Cape Commission,
I am writing in support inclusion of the Canal Area Transportation Study in the Regional Transportation Plan by the Massachusetts DOT. We need to prioritize replacement of the canal bridges to create better and safer access to Cape Cod.
Our economy and quality of life depends upon bridge replacement. This will improve the safety of residents going on and off Cape Cod, the air quality, and alleviate the gridlock the area experiences. It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make goods virtually inaccessible for residents and businesses and destroy the economy of Cape Cod.
Thank you for your consideration.
Sincerely,
Ian Brumberger
33 Farnham Dr
Plymouth, MA 02360
iandavid02302@gmail.com

Comment 359
From: Susan Challenger <susan.challenger@sothebyshomes.com>
Sent: Monday, July 8, 2019 12:55 PM

To: Steven Tupper
Subject: RTP

Dear Cape Commission,

I am writing to support including implementation of the Canal Area Transportation study in the Regional Transportation Plan by the Massachusetts DOT. We need to replace the Sagamore Bridge to create better and safer access to Cape Cod.

Our economy and quality of life depends upon bridge replacement ensuring safe and efficient access on-and-off Cape. Replacing the Cape Cod bridges will improve the safety of residents going on and off Cape Cod, improve air quality, and help alleviate the gridlock the area experiences.

It is important to prioritize and include this implementation now before the dire possibility of freight restrictions that would make essential goods virtually inaccessible for residents and businesses, and destroy the economy of Cape Cod.

Thank you for your consideration.

Sincerely,

Susan Challenger
PO Box 967
West Falmouth, MA 02574
susan.challenger@sothebyshomes.com

From: Anne Scott-Putney
To: Steven Tupper
Cc: Wendy Northcross
Subject: Support for the Canal Bridge Improvement Plans
Date: Tuesday, July 2, 2019 8:34:58 AM
Attachments: image001.png

Dear Mr. Tupper,

I am writing in support of the inclusion of the Canal Area Transportation Plan study implementation by Mass DOT in the Regional Transportation Plan. As an employer of nearly 70 individuals and as a destination for Cape residents and visitors, we agree that the region needs a plan for bridge replacement and roadway improvements to ensure transportation reliability and traffic efficiency. We agree with the need to maintain the quality of life for residents and employees on the Cape at existing roadway capacity.

We are located in Sandwich and have a number of employees who cross the bridge to work at our location, and Cape resident employees who cross the bridge to the mainland for business purposes, medical care, and other appointments. It is important for our quality of life and work to eliminate frequent lane drops and relieve the Cape of gridlock during bridge maintenance, not to mention to have reliable evacuation routes in case of weather crises or other emergencies. This is about ensuring reliable, modern transportation at existing roadway capacity for our Cape residents and employees.

We value the quality of life here on Cape Cod, and seek to enhance and enrich it through Heritage's mission. Robust property values, clean air and quality employment are part of that quality of life, and the bridge replacement plan is a part of the that equation.

Thank you.

Sincerely,

Anne

Anne Scott-Putney
President & CEO
Heritage Museums & Gardens
67 Grove Street
Sandwich, MA 02563
508.888.3300 x. 143
www.heritagemuseumsandgardens.org

Heritage Opens for its 50th Season on April 27th!

HERITAGE
museums & gardens
50th anniversary

COALITION FOR THE FIX

Support Plans for New Spans

July 2, 2019

Cape Cod Commission Transportation Program
Steven Tupper, Transportation Program Manager
3225 Main St.
PO Box 226
Barnstable, MA 02630-0226

Dear Steven:

The Big Fix Coalition made up of multiple businesses, non-profit organizations, chambers, and legislators support the inclusion of the Canal Area Transportation Plan study implementation by MassDOT in the Regional Transportation Plan. The region needs a plan for bridge replacement and roadway improvements to maintain our quality of life at existing roadway capacity. We need to make Cape Cod work for its residents, eliminate frequent lane drops and relieve Upper Cape gridlock during bridge maintenance cycles.

Replacement of the bridges will also improve air quality and cues of traffic, remove doubt about freight restrictions due to weight limits, and increase safety and evacuation routes for residents. Evacuation of the Cape during emergencies or bad weather is a key factor for both bridges and lends itself to a serious public safety issue if conditions remain as they exist.

We strongly encourage the Cape Cod Commission to include the Canal Area Transportation Plan in the RTP. We appreciate your consideration.

Sincerely, and on behalf of The Fix Coalition,

Wendy K. Northcross, CEO
Cod Chamber of Commerce

Marie Oliva, President & CEO
Cape Cod Canal Region Chamber of Commerce

The Bridge Fix Coalition Members:
On behalf of the 8390 employer establishments and 214,333 year round residents, we support The Fix for the canal region transportation system:

Cape Cod Chamber of Commerce
Cape Cod Canal Region Chamber of Commerce
Eastham Chamber of Commerce
Orleans Chamber of Commerce
Harwich Chamber of Commerce

Brewster Chamber of Commerce
Yarmouth Chamber of Commerce
Greater Hyannis Chamber of Commerce
Sandwich Chamber of Commerce
Wellfleet Chamber of Commerce
Provincetown Chamber of Commerce
Falmouth Chamber of Commerce
Bert Jackson, Executive Director, Cape Cod Technology Council
Cape & Islands Association of Realtors
Representatives Peake, Whelan, Crocker, Vieira, Fernandes, Hunt, Gifford-Williams.
Senator Cyr – Cape & Islands District
Senator V. deMacedo, Barnstable & Plymouth
Tom Guerino, Bourne Town Administrator
Tom Cahir, Cape Cod RTA
Congressman Bill Keating
Robert Talerman, Cape Cod Five Cents Savings Bank
Gary Fialky, Esq. Bacon Wilson
Melinda Gallant, Justice of the Peace & Improv Your Life Instructor – Sandwich
Gail Knell, The Ebb Tide / The Sea View, Dennisport
Eugene Curry, Esq. Law offices of Eugene Curry
Su Moran, Chair, Barnstable Economic Development Council
Mark R. Forest, Selectman. Town of Yarmouth & Chairman, Cape Cod Conservation District

Turtle Rock LLC

To All Concerned Parties of the Cape Cod Regional Transportation Plan:

We own and operate the Christmas Tree Shops building along with several abutting properties to the Sagamore Bridge including two retail buildings, three vacant lots and two residential units with six apartments. The abutting properties have been recently acquired with plans for additional development (see separate page map; all properties in yellow).

This letter is to serve as notice of the economic impact of moving Exit 1C as suggested in a draft document from the Mass DOT.



Some pertinent facts about the one store:

- 50 jobs are provided in the location
- $1,000,000 dollars annually in payroll
- $130,000 in FICA annually
- $400,000 sales tax annually
- $30,000 property tax annually

Over 30 years the store has paid out:

- $30,000,000 in salaries
- $3,900,000 in FICA
- $12,000,000 in sales tax
- $900,000 in property taxes

The Thatched Roof Icon building, which was the largest thatched building in the world, opened in 1985 and has been part of the visual identification of Cape Cod. Turtle Rock LLC, owned and operated by the Bilezikian Family, who developed the property for its retail business, Christmas Tree Shops, and transformed vacant land which was being used as a dump, into an economic engine that brought life to this area. We maintain the property, public restrooms, and trash receptacles seven days per week year-round. The building and surrounding parking area are well maintained, landscaped and in good repair as compared to what was there.

Changes on Adams Street to one-way and the loss of one curb cut without notification or discussion has created safety hazards, additional traffic and confusion on our property. We understand the need for change and want to partner on solutions that have positive results for Cape Cod and Sagamore while preserving the businesses and property values that benefit the current Exit 1C location.

We are going to commission our own traffic study to demonstrate the impact of the removing Exit 1C and the DOT recommendations on the business. We reserve the right to submit this report.

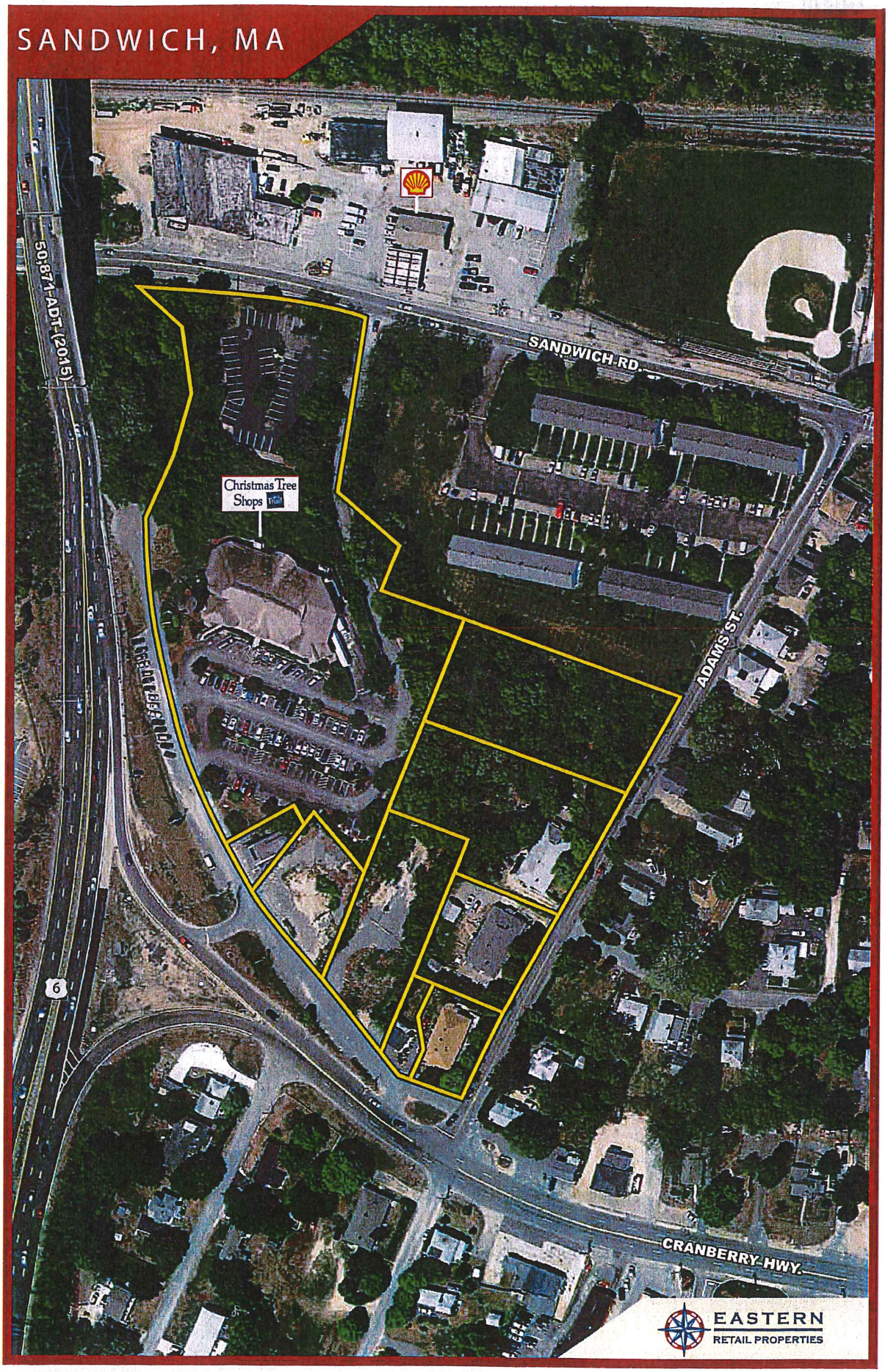
We are asking for your help to preserve and improve the traffic going to this location so it will grow and provide for the future for Cape Cod, Bourne, the Tourism dollars that Christmas Tree Shops has brought in the past and expects to bring in the future, and, most importantly, the employees that rely on the jobs this area provides. We believe closing the current exit will negatively impact our location and not improve traffic flow off Cape Cod.

Thank you for your consideration.

Jeffrey D. Bilezikian & Gregory C. Bilezikian

Owners

231 Willow Street, Yarmouthport, MA 02675 | Phone: 508.375.0005 | Fax: 508.375.0303


SANDWICH, MA
50,871 ADT (2015)
SANDWICH RD.
Christmas Tree Shops
ADAMS ST.
6
CRANBERRY HWY.
EASTERN
RETAIL PROPERTIES

From: Lisa Oliver
To: Steven Tupper
Subject: RTP
Date: Wednesday, July 3, 2019 12:42:47 PM
Attachments: free-giftbb85bc
coop-of-cc-logo-sig8a1f37

Hi Steve,

I support the inclusion of the Canal Area Transportation Plan study implementation by Mass DOT in the Regional Transportation Plan. I am the head of an organization employing over 170 people on Cape Cod, I understand the importance of high quality access to Cape Cod in terms of the often unmentioned, critical issues facing year round residents and employers. This group of Cape Codders uses our roadways and bridges as a part of daily living – not simply for vacation or investment property purposes. The region needs a plan for bridge replacement and roadway improvement to maintain our quality of life with existing roadway capacity.

As is happens now, frequent lane drops and Upper Cape gridlock during bridge maintenance cycles causes significant stress for our employees who live off-Cape. As an larger employer on the Cape, sourcing future employees off-Cape is more and more critical as the mature generation continues to retire and we tackle affordable housing issues which often prevent individuals from moving to the Cape. Less standstill and slow moving traffic would improve air quality, and facilitated access would improve property values for the greater good. Importantly, and rarely mentioned, the Cape needs improved safety and evacuation routes for citizens in face of a natural or man-made disaster. As it stands now, the potential for loss of life would be substantial in such a situation.

Lastly, as an avid biker and regular commuter along Route 28, we must increase alternatives to the automobile, including safe pedestrian and bicycle access in the region. We live in a magnificent place where people want to be outside, but the risk of biking or walking on the roadways is too significant to encourage more people to embrace alternative commuting methods. Bike/Walking lanes are critical to reducing our carbon footprint and engaging in a more healthy economy.

Thank you Steve.

Best regards,
Lisa Oliver



Lisa Oliver
President and Chief Executive Officer



Phone: 508.568.3370
Fax: 508.568.3232
Toll Free: 800.641.1100
loliver@mycapecodbank.com
www.mycapecodbank.com
The Cooperative Bank of Cape Cod

Member FDIC. Member SIF. Equal Housing Lender

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Enquete de Transporte

Classifique os seguintes itens de acordo com a importância para você:

	Em importância	Alguma importância	Muito importante	Não tenho certeza
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Enquete de Transporte

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A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

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Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

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Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
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Outros (favor especificar)	☐	☐	☐	☐

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Email: _____

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Enquete de Transporte

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Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

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Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

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Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

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OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

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Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Guilherme Vieira

Email: _____

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

Enquete de Transporte

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Outros (favor especificar)	☐	☐	☑	☐

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Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

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A disponibilidade de serviços de ônibus dentro da comunidade.	☒	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: FABIA BROWN

Email: fabia.romero@hotmail.com

Preferência de idioma: ☒ Inglês ☒ Português ☐ Outros _____

Enquete de Transporte

Classifique os seguintes itens de acordo com a importância para você:

	Em importância	Alguma importância	Muito importante	Não tenho certeza
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☒	☐	☐	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☒	☐	☐	☐
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Outros (favor especificar)	☒	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: TATIANE DIAMANTINO

Email: tatidiamantino@hotmail.com

Preferência de idioma: ☒ Inglês ☒ Português ☒ Outros Francês

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

Classifique os seguintes itens de acordo com a importância para você:

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Comment 364-539 - Various from Church of Cape Cod Outreach Event

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OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Transportation Survey

Please rank the following items in terms of importance to you.

	Not important	Somewhat important	Very important	Not sure
The ability to travel to destinations on the other side of the Cape Cod Canal (over the Bourne or Sagamore Bridges)	☐	☐	☒	☐
Roads that are safe for drivers, bicyclists, and pedestrians	☐	☒	☐	☐
The availability of bus service within your community	☐	☐	☒	☐
Safe and well-maintained sidewalks in your neighborhood	☐	☒	☐	☐
A transportation system that maintains, protects, and enhances the natural environment	☐	☐	☒	☐
Other (please specify)	☐	☐	☐	☐

Please describe any transportation challenges you face.

OPTIONAL - If you would like to be contacted, please include your contact information below:

Name: _____

Email: _____

Language preference: ☐ English ☐ Portuguese ☐ Other _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

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Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

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Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: JENNIFER COX

Email: JENNIFERC@GMAIL.COM

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

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OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Lucas Scott

Email: _____

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

Enquete de Transporte

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Comment 364-539 - Various from Church of Cape Cod Outreach Event

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OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

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Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	■	☐
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Calçadas seguras e bem mantidas em sua vizinhança.	☐	■	☐	☐
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Email: _____

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Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Horário

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

Classifique os seguintes itens de acordo com a importância para você:

	Em importância	Alguma importância	Muito importante	Não tenho certeza
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Transportation Survey

Please rank the following items in terms of importance to you.

	Not important	Somewhat important	Very important	Not sure
The ability to travel to destinations on the other side of the Cape Cod Canal (over the Bourne or Sagamore Bridges)	☐	☐	☒	☐
Roads that are safe for drivers, bicyclists, and pedestrians	☐	☐	☒	☐
The availability of bus service within your community	☐	☐	☒	☐
Safe and well-maintained sidewalks in your neighborhood	☐	☐	☒	☐
A transportation system that maintains, protects, and enhances the natural environment	☐	☐	☒	☐
Other (please specify)	☐	☐	☐	☐

Please describe any transportation challenges you face.

timer

more BUS

OPTIONAL - If you would like to be contacted, please include your contact information below:

Name: _____

Email: _____

Language preference: ☐ English ☐ Portuguese ☐ Other _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Transportation Survey

Please rank the following items in terms of importance to you.

	Not important	Somewhat important	Very important	Not sure
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Roads that are safe for drivers, bicyclists, and pedestrians	☐	☐	☒	☐
The availability of bus service within your community	☐	☐	☐	☒
Safe and well-maintained sidewalks in your neighborhood	☐	☐	☒	☐
A transportation system that maintains, protects, and enhances the natural environment	☐	☐	☒	☐
Other (please specify)	☒	☐	☐	☐

Please describe any transportation challenges you face.

OPTIONAL - If you would like to be contacted, please include your contact information below:

Name: Thiago Matheus da Silva

Email: Thiago_matheus88@hotmail.com

Language preference: ☐ English ☒ Portuguese ☐ Other _____

Enquete de Transporte

Classifique os seguintes itens de acordo com a importância para você:

	Em importância	Alguma importância	Muito importante	Não tenho certeza
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A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

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Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

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Nome: _____

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Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Valesca da Silva

Email: VALESKAVARIASILVA@Gmail.com

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

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Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: MARCIO LIRA

Email: LIRAPOLIMENTO@Hotmail.com

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

Enquete de Transporte

Classifique os seguintes itens de acordo com a importância para você:

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Nome: _____

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Comment 364-539 - Various from Church of Cape Cod Outreach Event

Transportation Survey

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The availability of bus service within your community	☐	☐	☐	☐
Safe and well-maintained sidewalks in your neighborhood	☐	☐	☐	☐
A transportation system that maintains, protects, and enhances the natural environment	☐	☐	☐	☐
Other (please specify)	☐	☐	☐	☐

Please describe any transportation challenges you face.

OPTIONAL - If you would like to be contacted, please include your contact information below:

Name: _____

Email: _____

Language preference: ☐ English ☐ Portuguese ☐ Other _____

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a stop sign at 4 C's pedestrian cross walk

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Nome: _____

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Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

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Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Cristina De Souza

Email: Cristinasouza1@hotmail.com

Preferência de idioma: ☐ Inglês ☑ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

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Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Vitoria Machado.

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

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Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: TONY DOS SANTOS

Email: 508 718 8858

Preferência de idioma: ☐ Inglês ☑ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

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OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Alexandra Dos Santos

Email: alle-santos2@hotmail.com

Preferência de idioma: ☐ Inglês ☑ Português ☐ Outros _____

Enquete de Transporte

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Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

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Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
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Estradas seguras para motoristas, ciclistas e pedestres.	NOT ☒	☐	☒	☐
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Osterville - Pond ST I think need improvement with more walkways.

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Some more Signal lights in specific locations intead of only Stop Sigh.

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need of extra Signal Lights

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VERY BUSY ON SUMMER.

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VERY IMPORTANT WILL BE ADDING MORE BUSSES ROUTES AND SIDEWALKS FOR PEDESTRIANS.

Favor descrever os desafios que você enfrenta em relação ao transporte.

1)

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: VIVIAN WATANABE

Email: VIVIYW@YAHOO.COM

Preferência de idioma: ☒ Inglês ☐ Português ☐ Outros _____

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DRIVE LICENSE FOR INDOCUMENTADO

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Comment 364-539 - Various from Church of Cape Cod Outreach Event

Transportation Survey

Please rank the following items in terms of importance to you.

	Not important	Somewhat important	Very important	Not sure
The ability to travel to destinations on the other side of the Cape Cod Canal (over the Bourne or Sagamore Bridges)	☐	☐	☒	☐
Roads that are safe for drivers, bicyclists, and pedestrians	☒	☐	☒	☐
The availability of bus service within your community	☒	☐	☒	☐
Safe and well-maintained sidewalks in your neighborhood	☒	☐	☒	☐
A transportation system that maintains, protects, and enhances the natural environment	☐	☐	☒	☐
Other (please specify)	☐	☐	☐	☐

Please describe any transportation challenges you face.

long wait for bus
Not on time

OPTIONAL - If you would like to be contacted, please include your contact information below:

Name: _____

Email: _____

Language preference: ☐ English ☐ Portuguese ☐ Other _____

Transportation Survey

Please rank the following items in terms of importance to you.

	Not important	Somewhat important	Very important	Not sure
The ability to travel to destinations on the other side of the Cape Cod Canal (over the Bourne or Sagamore Bridges)	☐	☐	☒	☐
Roads that are safe for drivers, bicyclists, and pedestrians	☐	☐	☒	☐
The availability of bus service within your community	☐	☐	☒	☐
Safe and well-maintained sidewalks in your neighborhood	☐	☐	☒	☐
A transportation system that maintains, protects, and enhances the natural environment	☐	☐	☒	☐
Other (please specify)	☐	☐	☒	☐

Please describe any transportation challenges you face.

I want the bike path to Hyannis

OPTIONAL - If you would like to be contacted, please include your contact information below:

Name: Tom Connolly

Email: tjconnolly53@gmail.com

Language preference: ☒ English ☐ Portuguese ☐ Other _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Transportation Survey

Please rank the following items in terms of importance to you.

	Not important	Somewhat important	Very important	Not sure
The ability to travel to destinations on the other side of the Cape Cod Canal (over the Bourne or Sagamore Bridges)	☐	☒	☐	☐
Roads that are safe for drivers, bicyclists, and pedestrians	☐	☐	☒	☐
The availability of bus service within your community	☐	☒	☐	☐
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Other (please specify)	☐	☐	☐	☐

Please describe any transportation challenges you face.

OPTIONAL - If you would like to be contacted, please include your contact information below:

Name: _____

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Other (please specify)	☐	☐	☐	☐

Please describe any transportation challenges you face.

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Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

Classifique os seguintes itens de acordo com a importância para você:

	Em importância	Alguma importância	Muito importante	Não tenho certeza
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Enquete de Transporte

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Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

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Outros (favor especificar)	☐	☐	☐	☐

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Enquete de Transporte

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A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	■	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	■	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	■	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	■	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	■	☐
Outros (favor especificar)	☐	☐	■	☐

Uber

Favor descrever os desafios que você enfrenta em relação ao transporte.

Rotary is chaotic.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

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Comment 364-539 - Various from Church of Cape Cod Outreach Event

Enquete de Transporte

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Comment 364-539 - Various from Church of Cape Cod Outreach Event

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OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: ARENILSON F. S

Email: IMOVEISDESTAQUE@GMAIL.COM

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

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	Em importância	Alguma importância	Muito importante	Não tenho certeza
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

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Comment 364-539 - Various from Church of Cape Cod Outreach Event

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I Have to cross Sagamore Bridge Frequently. the TRAFFIC is A ISSUE Specially on summer time.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Suellen Costa

Email: _____

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

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Nome: RAQUEL CRAPPLDI

Email: RAQUEL_CRAPPLDI@OUTLOOK.COM

Preferência de idioma: ☑ Inglês ☑ Português ☐ Outros _____

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Comment 364-539 - Various from Church of Cape Cod Outreach Event

Transportation Survey

Please rank the following items in terms of importance to you.

	Not important	Somewhat important	Very important	Not sure
The ability to travel to destinations on the other side of the Cape Cod Canal (over the Bourne or Sagamore Bridges)	☐	☐	☒	☐
Roads that are safe for drivers, bicyclists, and pedestrians	☐	☐	☒	☐
The availability of bus service within your community	☐	☐	☒	☐
Safe and well-maintained sidewalks in your neighborhood	☐	☒	☐	☐
A transportation system that maintains, protects, and enhances the natural environment	☐	☐	☐	☐
Other (please specify)	☐	☐	☒	☐

Please describe any transportation challenges you face.

OPTIONAL - If you would like to be contacted, please include your contact information below:

Name: Jay Ferris

Email: _____

Language preference: ☒ English ☐ Portuguese ☐ Other _____

Enquete de Transporte

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Favor descrever os desafios que você enfrenta em relação ao transporte.

Onibus para trazer os jovens para igreja
Buses to bring youth to church.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Aglan S. D.

Email:

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros

importância para você:

	Em	Algu	Mu	
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
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Outros (favor especificar)				

Favor descrever os desafios que você enfrenta em relação ao transporte.

TRANSPORTE para os JOVENS VIR NA CHURCH
TRANSPORTATION FOR YOUTH To come to church

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: LEONARDO

Email: LEONARDO

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros

Comment 364-539 - Various from Church of Cape Cod Outreach Event

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A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☐	☐
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Favor descrever os desafios que você enfrenta em relação ao transporte.

ILUMINAÇÃO PARA TRANSITAR NAS RUAS DURANTE O PERÍODO NOTURNO TANTO PARA PEDESTRES QUANTO PARA CICLISTAS.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

More lights on the streets at night for pedetrians and cyclists

Classifique os seguintes itens de acordo com a importância para você:

	Em	Alg	Mi	Ni
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

mais Horarios de ônibus no Inverno e no Verão é Bom

more buses in the winter and summer time

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☐	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☐	☐	☒	☐

TRANSPORTE Publico de facil ACESSO PARA todos. Better Public Transportation with an easy access to everyone

Favor descrever os desafios que você enfrenta em relação ao transporte.

NÃO tem mobilidade Publica

lack of public mobility

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☒	☐	☐	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☒	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Não tem transportes para outras cidades vizinhas.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

↳ there is no public transportation to towns nearby

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☒	☐

eu não dirijo e muito bom
I don't drive and it is good

Favor descrever os desafios que você enfrenta em relação ao transporte.

gostei muito deste apoio. Agradeço a vocês e a Deus.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: maria 678 382 870

Email: [redacted]

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

I like this support a lot and I thank you and God.

Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

O CAPE É UM LUGAR MARAVILHOSO MAS FALTA TRANSPORTE. The cape is a wonderful place but lack transportation

Favor descrever os desafios que você enfrenta em relação ao transporte.

Dificuldade e alto custo para ir trabalhar, e até passear

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: DEBORA LOPES VASCONCELOS

Email: STILLDEBORA@hotmail.com

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

It is difficult and it is a high cost to go to work and even to travel around for pleasure

Comment 364-539 - Various from Church of Cape Cod Outreach Event

	Er	Al	V	N
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☒	☐

Iluminação noturna nas ruas e em locais para pedestres

Favor descrever os desafios que você enfrenta em relação ao transporte.

Falta de transporte público e em mais horários

Lack of more public transportation

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

→ lights on the roads at night and for pedestrians

A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

ASFALTO COM MUITOS BURACOS

Too many holes on the roads

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Classifique os seguintes itens de acordo com a importância para você:

	Em importância	Alguma importânci	Muito importante	Não tenho certeza
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☒	☐	☐	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☒	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☒	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Transito no verão + tempo
de demora dos ônibus
too much Traffic on summer
time and public transportation
takes long.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Classifique os seguintes itens de acordo com a importância para você:

	Em importância	Alguma importâ	Muito importar	Não tenho cer
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☐	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☒	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☒	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

THERE NEEDING CAT
AROUND PLATES
?

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: EVALDO BARROS JR

Email: 774 362 8537

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☐	☑
Estradas seguras para motoristas, ciclistas e pedestres.	☑	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☐	☑
Calçadas seguras e bem mantidas em sua vizinhança.	☑	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☑	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

None

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Sagamore)				
Estradas seguras para motoristas, ciclistas e pedestres.	☑	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☐	☑
Calçadas seguras e bem mantidas em sua vizinhança.	☑	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☑	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

None

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

pedestres.	☐	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

muito TRANSITO

Too much traffic

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

pedestres.	☐	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

não existe transporte pública ou é precário.
There is no public transportation OR it is very poor

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

vizinhança.				
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Transporte de serviços de outros.
public transportation

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Estradas seguras para motoristas, ciclistas e pedestres.	☒	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☒	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☒	☐	☐	☐

Bilingue Drivers.

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome:

Email:

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros

bilingual Drivers

Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

*1 tenho pessoas que moram em minha Residencia que não pode dirigir o onibus é muito importante

Favor descrever os desafios que você enfrenta em relação ao transporte.

*2 Meu Filho tem dificuldade em andar de Bicicleta por não se sentir seguro nas ruas.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome:

Email:

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros

*1 I have people living with me that can not drive, so public transportation is very important!

*2 My son has difficulty of riding a bike because he does not feel safe on the streets

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☒	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☒	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

conhecimento de como me integrar

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome:

Email:

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros

→ Knowledge in how I can integrate

Favor descrever os desafios que você enfrenta em relação ao transporte.

Falta de transporte Publico

Lack of public transportation

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome:

Email:

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros

Comment 364-539 - Various from Church of Cape Cod Outreach Event

pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

*1 1º Falta de uma pista mais adequada para ciclistas e calçadas pelos pedestres.

*2 2º Muitos dirigem e usam o celular ainda

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Leonardo

Email: leocbr6@gmail.com

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	X	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	X	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	X	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Falta de horário dos ônibus para trânsito dentro do Cape.

Lack of public transportation

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

*1 — Lack of an adequate Bike lines and sidewalks

*2 - Many people drive using the cell phone.

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☑	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☑	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

* Habilidade de transitar e se desloc- ar para algum lugar para quem não tem carro.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Murillo Teodolino

Email: Teodolinomurillo@gmail.com

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

* Been able to move around without having a car.

vizinhança.				
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☑	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

* Não tenho carro e não consigo me locomover bem pela cidade. Os pontos de paradas não são bem sinalizados e os horários são muito longos

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

I don't have a car and I am not able to move around. The bus stops are not very well signed and the schedule is very minimal.

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Mais ciclovias, no verão aumenta muito o ciclo de pessoas e vejo muitos acidentes com ciclistas que são obrigados a andar na mesma pista

Favor descrever os desafios que você enfrenta em relação ao transporte.

More bike path, in the Summer there are more people around and I See too many accidents with cyclists that are forced to drive on the same road as the cars.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

FALTA DE ONIBUS PARA LOCOMOÇÃO

Lack of Public Transportation

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☑	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☑	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☑	☐
Outros (favor especificar)	☐	☐	☑	☐

Habilidade de ir pl Boston
Been able to go to Boston

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

comunidade.

Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☑	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☑	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Passa de pouco em pouco Tempo
e a limitação de Locais
limited Bus schedule and
limited bus stops

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☑ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

pedestres.				
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☒	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Melhorar a mobilidade durante o verão.
To better urban mobility during summer time

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Carina Santos

Email: consultoster4u@gmail.com

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Pouco Transporte público.
Lack Public transportation

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Estradas seguras para motoristas, ciclistas e pedestres.	☒	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☒	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☒	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

pedestres.				
A disponibilidade de serviços de ônibus dentro da comunidade.	☒	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

* Deveria ter mais Onibus e Horarios e Tambem Passar Dentro dos Bairros, e não só nas Principais

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Favor descrever os desafios que você enfrenta em relação ao transporte.

Obter informações de como funciona. Nunca usei por não saber como funciona.
How to get information in how to use the service. I never used it because I don't know how.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

* more public transportation moving around the towns but not just on the main Road.

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Safe and well-maintained sidewalks in your neighborhood	☐	☐	☒	☐
A transportation system that maintains, protects, and enhances the natural environment	☐	☐	☒	☐
Other (please specify)	☐	☐	☐	☐

Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

* Ruas esfaltadas não são as principais obrigada

Please describe any transportation challenges you face.

WOULD BE VERY GOOD IF WE HAVE MORE BUSES OR MORE WITH DIFFERNTE PICK UP TIME + AND MORE AVAILABILITY FOR THE WORKERS.

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPTIONAL - If you would like to be contacted, please include your contact information below:

Name: MARCIA PRETE

Email: MARCIAPRETE@HOTMAIL.COM

Language preference: ☐ English ☐ Portuguese ☐ Other _____

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

* paved roads (not just the main roads.
thank you.

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☒	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

* SINAL PEDESTRE DEMORA PARA NOS PEDESTRE PASSARMOS. DESDE NO MEIO DA RUE APERTO FICO ESPERANDO UNS 10 SEGUNDOS. E AS VEZES PASSO QUANDO NÃO TEM CARRO.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

* the pedestrians stop sign at the traffic lights, takes too long to give us the preference, sometimes I have to wait about 40 seconds and I cross the road when there is no cars coming

Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

* A gente, vindo do Brasil, ficamos perdidos, há pouco tempo que cheguei aqui, até mesmo pra termos condições

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: (978) 984-3858

Email: sandra.meirelles@yahoo.com

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros _____

Salvo carga de emprego também ajuda

* We come from Brazil and we feel lost; sometimes we have to purchase a car without financial conditions

Comment 364-539 - Various from Church of Cape Cod Outreach Event

A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☒	☐	☐
Outros (favor especificar)	☐	☐	☒	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

~~Hard~~
mais horarios de onibus e
mais localidades
more buses circulating and
in more places

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

horario muito longo entre um
onibus e outro.
poor bus schedule

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

comunidade.

Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Pessoas que não tem carro, não conseguem se locomover de bus aqui no cape

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

More buses inside the cape to avoid a large group of cars.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

People without a car can not move around on the cape — more "

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Sagamore)

Estradas seguras para motoristas, ciclistas e pedestres.	☒	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☒	☐

Transporte para o Hospital de Boston
Transportation to Boston's hospitals

Favor descrever os desafios que você enfrenta em relação ao transporte.

Faixas Locais de Parada
Few bus stops

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Preciso utilizar uber ou taxi algumas vezes pois não sei as notas dos ônibus.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

~~I me~~ I need to use Uber sometimes because I don't know the buses route.

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

more buses routes, sidewalks, bike paths throughout cape and improvement of route 28 and 32 (more traffic lanes)

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

vizinhança.				
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar) CONGESTIONAMENTO Traffic congestion	☐	☐	☒	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

HORÁRIO schedule

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

A disponibilidade de serviços de ônibus dentro da comunidade.	☑	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☑	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☑	☐	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

I believe we have transportation in Cape Cod.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: Ana Orlando

Email: Anaisabel2002@hotmail.com

Preferência de idioma: ☑ Inglês ☐ Português ☐ Outros _____

comunidade.				
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☒	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Some intense traffic most in Summer.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

importância para você:

	Em im	Algum	Muito	Não t
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☒	☐	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Fiquei um mes sem carro e não conseguia sair onde

I was a month without a car and was not able to use public transportation

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

importância para você:

	En	Al	M	N
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☒	☐	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☐	☒
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

SAID do CAPE no ~~Sum~~ Verão

Go over the Bridge in the Summer

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Comment 364-539 - Various from Church of Cape Cod Outreach Event

Classifique os seguintes itens de acordo com a importância para você:

	Em impor	Alguma ir	Muito im	Não tent
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	☒	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	☒	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

AMPLIAR MAS RUAS PARA MELHORAR O TRANSITO NA CIDADE DE HYANNIS.

expand the roads in Hyannis to better the traffic

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: ISRAEL DA SILVA

Email: ISRAELHENRIQUEDASILVA@GMAIL.COM

Preferência de idioma: ☒ Inglês ☐ Português ☐ Outros _____

Classifique os seguintes itens de acordo com a importância para você:

	Em imp	Alguma	Muito i	Não te
A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☒	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☒	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☒	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	☒	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☒	☐
Outros (favor especificar)	☐	☐	☒	☐

mais constancia de veiculos públicos para Transporte. more public transportation

Favor descrever os desafios que você enfrenta em relação ao transporte.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome: _____

Email: _____

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros _____

Comment 364-539 - Various from Church of Cape Cod Outreach Event

A habilidade de transitar para o outro lado do Cape Cod Canal (Depois das pontes de Bourne e Sagamore)	☐	☐	☐	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☐	☐	■	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☐	☐	■	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☐	☐	■	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	■	☐
Outros (favor especificar)	☐	☐	☐	☐

Favor descrever os desafios que você enfrenta em relação ao transporte.

Muitos das vezes pedestres nas ruas, devido a falta de espaço para pedestres.

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome:

Email:

Preferência de idioma: ☐ Inglês ☐ Português ☐ Outros

Lack of side walks, the pedestrians have to walk on the streets

A habilidade de trafegar [illegible] Cod Canal (Depois das pontes de Bourne e Sagamore)	☒	☐	☐	☐
Estradas seguras para motoristas, ciclistas e pedestres.	☒	☐	☐	☐
A disponibilidade de serviços de ônibus dentro da comunidade.	☒	☐	☐	☐
Calçadas seguras e bem mantidas em sua vizinhança.	☒	☐	☐	☐
Um sistema de transporte que mantém, protege e realça o meio ambiente.	☐	☐	☐	☐
Outros (favor especificar)				

mais transporte Publico para Duas Barras more public transportation with affordable cost

Favor descrever os desafios que você enfrenta em relação ao transporte.

*1 buracos nas ruas
DIVULGAÇÃO dos horários publicos do transporte

OPCIONAL - se você gostaria de ser contactado, favor deixar o seu número de contato abaixo

Nome:

Email: Jaracumas@Gmail.com

Preferência de idioma: ☐ Inglês ☒ Português ☐ Outros

*1 holes on the roads
Bus schedules posting

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, MassDOT Secretary & CEO

massDOT
Massachusetts Department of Transportation

July 9, 2019

Steven Tupper, Transportation Program Manager
Cape Cod Commission
3225 Main Street
Barnstable, MA 02630

Dear Mr. Tupper:

The Massachusetts Department of Transportation (MassDOT) Office of Transportation Planning (OTP) has reviewed the draft Federal Fiscal Year (FFY) 2020 Regional Transportation Plan (RTP) released by the Cape Cod Metropolitan Planning Organization (MPO) on June 17, 2019. The following MassDOT comments include both general guidance and specific comments on the MPO's 3C planning process related to the content of this document as released for public review.

Please note the following comments specific to the information contained in the MPO's draft FFY 2020 RTP.

General

- Please address typos and grammar as noted.
- Please consider layout improvements as noted.
- Please update any noted broken or outdated links.

Chapter 1

- Page 1: Please consider maintaining all of Table 1 on a single page.
- Page 17: Please describe how or whether public feedback influenced the sizing and selection of funding priorities.

Chapter 2

- Page 25: Please describe how Transportation Improvement Program (TIP) based strategies to achieve regional goals and objectives will be incorporated into future TIP documents or analyses.
- Page 29: Same as above.
- Page 29: Please consider relocating widowed header to top of next page.
- Page 30: Please elaborate on ferry congestion concerns, particularly regarding available data and trends.
- Page 30: Please elaborate on the particular work the Cape Cod MPO will perform to reduce construction impacts for Cape Cod Canal Bridge maintenance projects.
- Page 32: Please reference the Truck Travel Time Reliability performance measure in the Freight Mobility section if relevant, or if not relevant, please elaborate on potential or actual regional alternatives to measuring freight reliability.

Ten Park Plaza, Suite 4160, Boston, MA 02116
Tel: 857-368-4636, TTY: 857-368-0655
www.mass.gov/massdot

- Page 33: Please consider expanding the freight strategy for multiple modes to specifically reference alternatives to truck travel over the Cape Cod Canal Bridges.
- Page 44: Please clarify the Useful Life Benchmarks (ULBs) used by the Cape Cod Regional Transit Authority (CCRTA) in their Transit Asset Management Plan if they are different from the Federal Transit Administration (FTA) default ULBs, or specify that CCRTA is using the FTA default ULBs.
- Page 45: Please reference any current or planned UPWP tasks that are to be utilized to develop baseline assessments for performance measures.
- Page 45: Please note whether the percent change for the performance measure regarding sidewalks on Route 28 is informed by selected investments in the fiscally constrained project list.

Chapter 3

- Page 49: Please provide a legible legend for the Federal Period map of the Cape Cod transportation system in Figure 17.
- Page 54: Please consider inclusion of the Buzzard's Bay train station in Bourne in the list of Intermodal Facilities.
- Page 58: Please consider including a discussion on the prevalence and use of shared streets on the Cape, and a discussion on how these streets fit into plans for the regional sidewalk network.
- Page 64: Please update Figure 27 to show Phase 1 of the planned bike path in Bourne, as it is programmed in FY2024.
- Page 69: Please consider a reference to specific guides that the Cape Cod Commission or others have published regarding non-structural best management practices (BMPs) for control of runoff water quality.

Chapter 4

- Page 86: Please consider updating the proportion of greenhouse gas (GHG) emissions stemming from transportation with figures from The Commission on the Future of Transportation in the Commonwealth's report.
- Page 87: Please remove reference to GreenDOT.
- Page 91: Please consider referencing potential for increased utilization of intercity buses, particularly in the Cape Cod Canal area, for increasing person-throughput over vehicle-throughput.
- Page 92: Please elaborate on the reference to congestion pricing.
- Page 94: Please reference the transportation emissions cap and invest interstate agreement under development.

Chapter 5

- Page 100: Please coordinate with CCRTA on potential increases to available FTA funding due to fixed guideway transit reporting.
- Page 105: Please clarify which specific programs are intended to be funded using Highway Regional Target Funding if known.
- Page 107: Please consider a discussion of the benefits and drawbacks of the proximity based equity analysis currently utilized in the TIP / RTP analysis process.

Please contact me at (857) 368-8865 or Benjamin Muller at (857) 368-8882 if you have any questions.

Sincerely,

David Mohler
Executive Director
Office of Transportation Planning

Cc: Jeffrey McEwen, Division Administrator, Federal Highway Administration
Peter Butler, Acting Regional Administrator, Federal Transit Administration
Mary-Joe Perry, District 5 Highway Director
Astrid Glynn, Rail and Transit Division Administrator

From: Muller, Benjamin (DOT)
To: Steven Tupper
Cc: Pounds, Bryan (DOT)
Subject: Cape Cod Canal Area Improvements in the RTP
Date: Monday, July 15, 2019 10:35:17 AM
Attachments: Cape Cod Canal Area Improvements - YOE Costs and Time Bands from Highway Division 190712.pdf

Hi Steve—

We've gotten the final word for programming the Cape Cod Canal Area Improvements in the Cape Cod RTP. The following elements should be listed in the accompanying time bands:

2025–2029

- Scenic Highway to Route 25 Westbound On-Ramp *(in regional target)*
- Route 6 Exit 1C Relocation
- Route 6 Eastbound Travel Lane
- Sagamore Bridge Approach*
- Bourne Bridge Approach*

2030–2034

- Belmont Circle Reconstruction
- Bourne Rotary Interchange

I've also attached a marked-up table that outlines the above information with Year of Expenditure (YOE) costs in 2030 and in 2040. The Scenic Highway to Route 25 Westbound On-Ramp should remain at the YOE cost currently listed. The bridge approaches (each marked with an asterisk above) should include a caveat in the table caption that they are contingent upon the USACE Major Rehabilitation Evaluation Report recommending replacement of both bridges. The table caption should also state that these items—with the exception of the Scenic Highway to Route 25 Westbound On-Ramp—will be paid for with a mixture of state and federal sources.

If you're able to update the table in the RTP document before the MPO meeting on Monday that would be excellent. If not, we will just need to make certain that the MPO members are aware of the updated information when voting to endorse the RTP.

Have a great weekend!
Ben

Benjamin N.W. Muller
MassDOT Office of Transportation Planning | Regional Planning Coordinator, MPO Activities
10 Park Plaza, Suite #4150, Boston, MA 02116 | 857.368.8882 | benjamin.muller@state.ma.us | he/him/his

CAPE COD COMMISSION

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